

GEOGRAPHICAL, HISTORICAL,

AND

STATISTICAL

REPOSITORY.

BY WILLIAM DARBY,

Author of a Map, and Statistical account of Louisiana; Emigrant's Guide; Tour from New-York to Detroit; Memoir on Florida; and Universal Geographical Dictionary.

VOL. I.—No. I.

SEPTEMBER, 1824.

PHILADELPHIA:

PUBLISHED BY THE AUTHOR, AT NO. 2 NORTH SEVENTH STREET.

William Brown, Printer

1824.

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THE Reader is desired to observe, that in Table No. 4, page 56, the levels of the Susquehanna and Tioga rivers from Harrisburg to Newtown, are merely estimated relatively, and not calculated from actual measurement.

Error to be Corrected.

For Captain H. Bestody, in page 61, read Captain H. Bertody.

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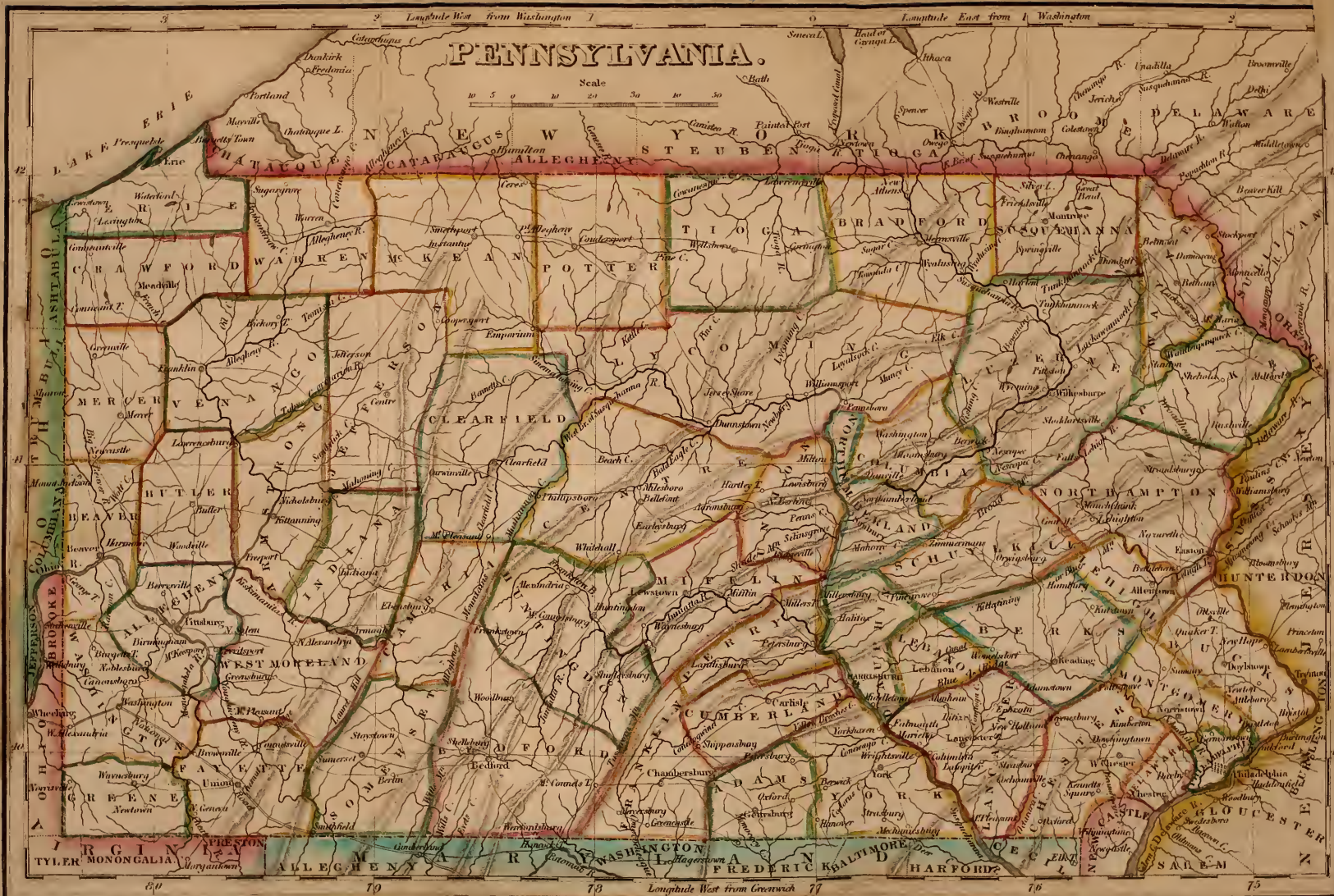
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VOL. I.—No. I.

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INTRODUCTION.

IN presenting to the public eye the first Number of the Repository, it may not be irrelevant to enter with some more minuteness into the views intended to be embraced than has been done in the original Prospectus. As proposed, the work will be subdivided into three parts :

SECT. I. This section will be appropriated to subjects purely Geographical ; in which, however, that term will be considered as taken in its most extensive sense, including Natural and Political Geography. It is intended to present the reader with geographical sketches of any part of the world, which, from particular causes, may claim a peculiar and instantaneous attention : such attention is generally excited by war, political revolution, or recent discovery. These are inexhaustible sources of interest, which, in their occurrence, enforce, stimulate, and localize curiosity. They are sources of intellectual reflection, which, when ceasing to flow, or becoming partially exhausted in one quarter, open copiously in some other region of our ever changeful earth. The task of the editor will be to watch the progress of those changes, and point out to his reader the result.

Though the scope of this section is thus expressed in general terms, the pages of the Repository will be, in great part, employed to delineate the particular Natural and Political Geography of the United States. As usually described in common geographical systems, the various subdivisions of the earth are represented as mere skeletons. The student from such treatises derives no more real knowledge of the capabilities of any country, than he could obtain of the character of an individual by being informed of his height and weight.

Geography, as a science, is moral. The interest we feel in tracing the features, developing the resources, and in scanning the improvements of any given portion of the earth, must arise from the character of the people who inhabit its surface. In this respect, not alone the territory of the United States, but all America, is gaining daily more to arrest the attention of the statesman and philosopher.

The Geography of the United States is a vast outline, tolerably traced, but the shades of colouring remain a void,

except in a few instances. The intrinsic value of statistical knowledge can only be known from its application in augmenting the sum of general prosperity by pointing out the springs of general resource. This invaluable pursuit has only recently assumed the character of a science, and, as such, is yet confined to a few countries, and is every where imperfect. The editor anxiously desires to become enabled to dedicate his entire time and attention to the undertaking he now places before the public, and in aid of which he solicits patronage. His own individual fitness or unfitness to do justice to an enterprise, involving so many details, on three of the most dignified objects of human study, can be only known from the execution of his enterprise. The importance of the subjects needs no farther amplification; the issue is left to the candour, generosity, and discernment of an enlightened public.

Similar observations may be made respecting every other section of this continent. Cities, towns, states, and even empires are rising with a rapidity which mocks the regular progress of geographical record. A periodical publication, therefore, in which every such object would meet prompt notice, must produce great public benefit.

Important as it may be as a moral and physical science, geography derives its highest value as an aid to human history. In this respect our views of nations are clear and decisive in proportion as we possess a comprehensive knowledge of their locality. Under the general head of Geography, in the Repository, will be included, all that appertains to either natural feature or natural production. With this latitude must be embraced every object relating to countries, either in a state of nature, or as improved by art.*

SECT. II. This section will be Historical, and dedicated principally to record the leading events of the present or passing time; but, as many instances must occur, when to judge of the existing, we are compelled to review the anterior state of nations, the Historical sketches will be often retrospective beyond what can be considered the present age. It would be vain, however, in this place, to anticipate the course necessary to pursue respecting objects, the importance or extent of which can only be shewn by time.

In conducting the Repository, many very substantial reasons have induced me to open the work with Pennsylvania; the first two volumes, consisting of six numbers, or 384 octavo

* See page 9.

pages each, will therefore be appropriated to give a view of the geographical features ; the natural productions ; improvements of every species ; and the civil and political History of Pennsylvania.

In order, to develop clearly, the history of Pennsylvania, it is indispensable to take a retrospective survey of the antecedent colonial establishment of England in North America. This investigation leads to a review of the colonial history of Virginia, Plymouth, Massachusetts, Connecticut, New-Haven, Rhode Island, Maryland, New-Jersey, Delaware, and New-York, previous to the date of the first charter of Pennsylvania.

In my public Historical Lectures, in Philadelphia and New-York, I have uniformly proceeded on the principle, that to understand our national, it was imperatively necessary to have carefully studied our colonial history ; and that to comprehend the latter with adequate accuracy, the colonies must be examined in connection.

The preliminary matter must of course be treated of briefly, as accessory to the main subject, the history of Pennsylvania. The early events however, in the establishment of New-Jersey, Delaware, Maryland and Pennsylvania, were so blended as to superinduce considerable detail on the three former colonies, in order to trace the progress of the latter with perspicuity.

Myself a native of Pennsylvania, I had at various periods travelled extensively over its surface ; but having conceived the design of becoming its historian, I have availed myself of every opportunity to examine those parts I had not formerly visited.

From the 2d of March, 1823, until the 25th of June, 1824, I was employed in travelling, most of the time in the interior of Pennsylvania. My object was an examination of those parts of the state I had not previously visited. In all my geographical disquisitions I have written, as far as in my power, from actual observation. Employed as I have been, in such labour for nearly 30 years, from governments, as such, I have not received the aid of one cent, and very little patronage from individuals directly connected with governments. It was from the liberality of individuals in private life, that my support has been, and I expect will continue to be drawn. Once more my appeal is made to the public. Six numbers form a volume, and consequently, two volumes will be published annually. The subscribers are only bound to continue their patronage to one volume ; the execution of which will fully test the talents of the author to do justice to his subject.

Should the Repository be continued, and adequately executed, it is obvious that a few years must render its volumes a source of material for that literary desideratum, a general history of the United States.

Each volume will have prefixed a map of such parts of the United States, as are more particularly treated of; and will have annexed a copious index. The Map of Pennsylvania will attend the first, and that of New-Jersey will be included in the second volume.

I have adopted, when treating on mountains, System as a generic term, and Chain as specific. This is indispensable respecting the great central mountains of the United States. Considered as a system, this great mountain mass is composed of several lateral ridges. These ridges literally extend like links of a chain. Broken by rivers or creeks, or otherwise interrupted, they are still continuous, to a great or lesser distance. Allegany is rendered inapplicable as a distinctive name of the system from being applied to one of its chains.*

I know of no former attempt to give a philosophical analysis of the mountains of the United States, and from the existing and strengthening spirit of canal and road improvement, I am acquainted with no branch of geography of more national importance. It is a subject on which, in conducting my Repository, I shall lose no opportunity to collect and record accurate information.

The mountain chains of Pennsylvania have a grandeur of appearance, and a mass of mineral wealth, which combine to give them interest to the geographer, and natural historian. The inexhaustible stores of iron ore and mineral coal in and near the chains traversing this state, are in themselves objects of primary magnitude, and leading elements in every statistical review of its most essential natural resources. It is therefore, the more necessary to obtain detailed and correct conceptions of features forming so deeply and prominently a part of the geography, and so permanently influential on the improvement and prosperity of the state.

European geographers have, very correctly, adopted different terms to designate the spaces drained by rivers discharged into oceans, and those of their minor branches; for the former, *Basin* is used, for the latter, *Valley*. This nomenclature I have also adopted, and consequently say *Basin* of Delaware, and *Valley* of Schuylkill; *Basin* of Mississippi, and *Valley* of Ohio; and use a similar distinction wherever necessary. In my public Lectures, and geographical disquisitions generally,

* See note, page 12.

I have made use of the term Atlantic slope, as a collective name for that part of the United States, and British provinces, the rivers of which are discharged into the Atlantic ocean.

Rivers are, of all natural tracts in the physiognomy of any country, those that most directly enhance intercommunication. It is a narrow and contracted view of canal or road creation, in such a country as that of the United States, to consider it of local interest. No canal, or road traversing any state, can have its resulting benefits confined to that particular political section. Any correct delineations given of any river, must consequently have not a local, but a national value. This is in a high degree true as respects the Susquehanna and the Ohio, and their confluents. The success of the sublime experiment made in the state of New-York, has lessened the incredulity of the human mind, and induced men to inquire into the practicability of constructing canals in places formerly overlooked, and have been led to engage in such undertakings with physical means, deemed hitherto as entirely inadequate. The national legislature has been at length influenced by this revolution in public sentiment, and has instituted a series of inquiry which, whether the projected canals are undertaken or not, must produce results greatly overbalancing in value any attendant expense.* It is much to be hoped that these surveys may be extended to the Susquehanna, in all its branches. Few are aware of the immense field of improvement which may be opened by the channel of this magnificent stream. Should the canal route by the Potomac and Ohio, that by the Susquehanna and Seneca lake, or either be completed, the effects will be felt to the most remote extremes of the United States, and links of adamant strength formed to secure the integrity of our confederacy. The epoch of such a consummation may be hailed as a jubilee, and it may then be said truly, "the mountains have disappeared." Their towering summits may indeed remain, to give richness and splendour to the scenery, but their moral and political effects will have ceased.

SECT. III. In this department the subjects will be purely Statistical, and dedicated to the descriptions and notices of public improvements and discoveries, more especially those in the United States. Under this head will be ranged all matter relating to canals, roads, bridges, important post-office regulations, manufactories, mineralogical operations—and in fine, upon every object connected with the advance or retrogradation of society, in the cultivation of those sciences, or the

* See Section III. of this number.

practice of those arts conducive to the promotion of individual comfort or aggregate force. In the performance of such an enterprise, our mite, however humble, will be given to aid in the development of national, sectional, and individual resource.

In every department of the Repository, the far greatest part of the matter will be original composition. It is not my intention to make the statistical section of my miscellany a collection of scraps. When any public improvement is either completed or proposed, such information as I can procure on the subject shall be placed on record; and with such geographical explanation, as to render the statistical matter intelligible.

It is inutile to detain the reader by farther explanations. A specimen of the Repository is before the public in this number. The general principles of the publication have been developed; and it may be safely asserted that no existing periodical paper in the United States can answer its purposes. An adherence to the general plan, it must to be obvious, will save the reader the fatigue of perusing indigested document. The Repository will assume an aspect the opposite of a Register; as in the latter, state papers form the body of the work, whilst in the former, their substance is preserved, but reduced in magnitude, and presented in the more inviting shape of historical narration.

Recent treatises on subjects connected with those of the Register will be, when their existence is made known to the editor, noticed at the close of each number. The general scope of such works will be laid before his readers when criticism shall be in his power by perusal.

A copious index will close each volume, and be published with the last number. The index will be appended to the volume, and printed on an extra sheet; consequently, each volume will contain nearly, if not altogether 400 pages.

Thus I have placed before its reader the intended character of the Repository. It cannot escape the least observing, that much labour and active research must be called into requisition to fulfil its promise. The difficulties of performance, nor incapacity of execution can be pleaded as an excuse for inefficiency, but candour will excuse many imperfections in a novel and incipient undertaking. With the utmost confidence in the liberality of that public whose generous indulgence I have so oftend experienced, I now launch into the performance of my arduous enterprise.

WILLIAM DARBY.

Philadelphia, August 14th, 1824.

DARBY'S

REPOSITORY.

VOL. I.

SEPTEMBER, 1824.

Nº I.

SECTION I.

GEOGRAPHICAL VIEW OF PENNSYLVANIA.

To preserve perspicuity, we are compelled, in geographical disquisitions, to precede the natural by a description of artificial subdivision. This method is indispensable, as references are perpetually necessary from the former to the latter. In the Repository the arrangement will be as follows :

Name, origin of.

Natural position, as respects latitude, longitude, and contiguous states, territories, &c.

Extent, Boundaries, and *Political*, or other conventional subdivisions.

Natural features—Mountains—Their range ; elevation ; component matter ; geological formation, and mineral productions.

Rivers—Their course ; area they respectively drain ; their contained facilities or obstructions to navigation. Vegetable and mineral productions generally.

Climate and Seasons—Their effects on vegetable life, and on the navigation of rivers and canals. How influenced by relative elevation ; exposure ; contiguity to land or water, and by other general or local causes.

Artificial features—Cities, towns, roads, canals, bridges, manufactures of every description ; colleges, schools, churches, and charitable establishments.

VOL. I.—B

No. 1.

As far as practicable, the subject matter will follow in regular order, as it is the desire of the Editor to render his work as easy of reference as within his power.

In accordance with previous notice, the first two volumes of the Repository will be occupied with Pennsylvania, and such other parts of the United States, the civil history of which is closely blended with that of the primary subjects of disquisition. A similar course will be continued, should any other great section of the United States be taken up in the future volumes of the Repository.

It is in general extremely difficult to trace civil history up to the period of writing. So complicated are the details of the passing moment, and so conflicting the evidence upon which is to be established, the truth of facts alleged to have occurred, that much caution must be exercised by that journalist whose pages will contain only real history. The editor, therefore, begs leave to recur to an expression used in his original Prospectus,—“*No statement will be made in any department, until the subject matter has assumed the stamp of certainty.*”

It will, of course, be obvious, that the thread of history must, in every instance, be broken before reaching the time of publication; and it will, however, be equally evident, that as it progresses, the Repository must be constantly accumulating treasures of historical fact.



PENNSYLVANIA. This name is derived from the surname of William Penn, and Sylvan, woods; and means, literally, Penn's woods. Though at the epoch when the name was imposed, the real features of the country it was in future to designate, were in great part unknown, to those who were its authors, no term could be more appropriate. Few, if any, regions of equal extent, and in one continuous body, ever bore, in a state of nature, a more dense forest. Pennsylvania was an expanse of woods, in the strictest acceptance of the word.

As now limited, Pennsylvania extends from N. Lat. 39° 43' to N. Lat. 42° 16'; and from 2° 20' E. to 3° 36' W. from Washington City.*

* From the operation of causes, which will be shewn in the sequel, Pennsylvania has assumed a local extent very different from the charter of its political creation. Its laws and the liberty of its inhabitants were the fruits of design; its boundaries, in some measure, that of accident.

Pennsylvania is bounded in common with Delaware, from the Delaware river by a circular line, around New Castle county, to the N. E. limits of Cæcil county, Maryland, - - - - -	<i>Miles.</i> 24
Due north to the N. E. angle of Maryland, - -	2
Along the northern limit of Maryland, - -	203
In common with Virginia, from the N. W. angle of Maryland to the S. W. angle of Greene county,	59
Due north, in common with Ohio, and Brooke coun- ties of Virginia to the Ohio river, - - -	64
Continuing the last noted limit, in common with Ohio to lake Erie, - - - - -	91
Along the S. E. shore of Lake Erie to the western limit of New-York, - - - - -	39
Due south along Chatauque county of New-York to N. Lat. 42°, - - - - -	19
Thence due east in common with New-York, to the right bank of Delaware river, - - - - -	230
Down the Delaware to the N. E. angle of the state of Delaware, - - - - -	230
Having an entire outline of - - - - -	961

The greatest length of Pennsylvania, is due west, from Bristol on the Delaware river, to the eastern border of Ohio county in Virginia, through 356 minutes of longitude, along N. Lat. 40° 09'. This distance, on that line of latitude, is equal to 315 American statute miles.

The greatest breadth 176 miles, from the Virginia line to the extreme northern angle on Lake Erie.

General breadth, 188 miles.

The area of Pennsylvania has been variously stated, but probably never very accurately determined. In both Morse's and Worster's Gazetteers, the superficies is given at 46,000 square miles.* Other authorities vary, but I find from com-

* On the large state map, by Melish, the area is given at 43,950. From the peculiar manner of collecting and collating the materials for Melish's map, we ought to consider it the best authority as to the extent of the state it represents; but it yields to the test of actual calculation, and gives to the state nearly one-fifteenth too little area. The error arose, no doubt, from using the common, but very inaccurate mode of estimating curve superficies by maps. The surface being curved, if the smallest county in Pennsylvania was calculated by its length and breadth on a map, the quotient would be rather the area of the base, than that of the curve superficies. Every county being thus subject to a small decrement, the aggregate of the whole would yield an amount considerably too small. A measurement of the whole state, on such principles, would be liable to similar error.

From placing a much too implicit confidence in the state map, I gave the

paring the best maps, and from calculating the rhumbs, and parts, occupied by the state, that Pennsylvania includes above 47,000 square miles. Rejecting the fractional excess, and using that curve superficies, the state will contain thirty million and eighty thousand statute acres.

The mountains of Pennsylvania, obtrude themselves at the first glance on a map, as the most prominent of its natural features. No even tolerably good survey having ever been made of the mountains of this region, and many important chains having been entirely omitted, a lucid classification is attended with great difficulty. Some of the collateral chains hitherto overlooked, I have supplied from personal observation; but no doubt much remains to be added or rectified, by future research.

The structure and position of its mountains, has given to Pennsylvania an aspect peculiar to itself. The Appalachian* system in the United States, generally extends in a direction, deviating not very essentially from south-west to north-east; but in Pennsylvania, the whole system is inflected from that course, and passes the state in a serpentine direction. Towards the south boundary, the mountains lie about north north-east, gradually inclining more eastwardly as they penetrate northwards; and in the central counties, many of the chains lie nearly east and west; but as they extend towards the northern border of the state, they again imperceptibly incline to the north-east, and enter New-York and New-Jersey in nearly that direction.

The influence of the mountains in modifying the general features, is very obvious, far beyond, where any chains or ridges are sufficiently elevated to be classed as parts of the Appalachian system. It will be, however, shewn in the progress of this review, that the mountain system is very much too greatly restricted, not alone in Pennsylvania, but also in Maryland, Virginia, New-York, and New-Jersey.

Without attending to minor claims, the mountains of Pennsylvania, advancing from the south-east to north-west, are as follows:

Though omitted in most maps, a chain enters the south boundary of York county, and cut by the Susquehanna river,

area of Pennsylvania, in my Geographical Dictionary, 43,950 square miles; but from a rigid calculation, I now find a very material difference between the real area and that taken from this map.

After considerable labour, I have found the area of Pennsylvania above 47,000 square miles, but have assumed that round sum as more convenient, and more easily remembered, than a number incumbered with fractions.

* The term Appalachian is certainly preferable to that of Allegany, if for no other reason than, that the latter, particularly in Pennsylvania, is applied to one of the chains of the system.

rises in, and traverses Lancaster county between Pequea and Octorara creeks; and between the sources of the Conestoga and Brandywine, separates for a short distance, Lancaster and Chester counties. Continuing between Berks and Chester, it is interrupted by the Schuylkill above Pottstown. Rising again, and stretching north-east, forms first, the boundary between Montgomery and Berks; thence between Lehigh and Bucks, and separating Northampton from Bucks, reaches the Delaware. Pursuing a north-east course through New-Jersey, separating Sussex from Huntingdon, Morris, and Bergen counties, enters New-York between the sources of the Wallkill and Passaic rivers; and extending, in broken ridges, through the south-east part of Orange county, forms the Highlands near West Point.

The almost uniform neglect of professed geographers respecting this strongly marked feature, attests the infancy of the science in the United States. After having formed the celebrated masses on both sides of the Hudson between Newburg and West Point, the ridge continues north-east, separating Putnam from Dutchess counties. Inflecting to the north, and forming the separating ridge between the waters of the Hudson and Housatonic rivers, stretches through the eastern part of Dutchess, Columbia, and Rennssalaer counties. Along the two latter, however, the ridge under review, forms, in reality, the separating boundary between New-York and Massachusetts; and entering the south-west angle of Vermont, continues through that state, by the name of Green Mountains, into Lower Canada. Thus prominent and continuous, from the Susquehanna to the north-east, this part of the Appalachian system is equally so through Maryland, Virginia, and North Carolina. Passing over Harford, Baltimore, Anne Arundel, and Montgomery counties, in Maryland, it forms falls in the Potomac, twelve miles above Georgetown, and extends into Virginia in Fairfax county. Varying in distance from twenty to thirty miles the Great Kittatinny or Blue Ridge, and the ridge we have been tracing, traverses Virginia into North Carolina. Leaving Virginia in Henry, and entering North Carolina in Stokes county; with its farther range I am unacquainted, but have no doubt but that it is distinctly continued over the Carolinas and Georgia into Alabama. Though the structure of the Atlantic slope, decidedly evinces a conformity to the Appalachian system, far below the south-east mountain, it is the terminating continuous ridge towards the Atlantic ocean.

North-west from, and nearly parallel to, the South mountain, another very remarkable ridge traverses New-Jersey and

Pennsylvania, and similar to the former, the latter is unknown in either of these states, by any general name. Its continuation in New-York is designated by the Shawangunk. Between the Susquehanna and Potomac, it is termed relatively, the South mountain; and in Virginia and the Carolinas, it forms the Blue ridge; and entering the north-west part of Georgia, is gradually lost amongst the sources of Chatahooche river.

To preserve perspicuity, I have adopted, or rather extended the name Blue Ridge, into Pennsylvania and New-Jersey. This very remarkable chain of the Appalachian system enters Pennsylvania, on its southern line, and stretching north between Adams and Franklin counties, reaches the southern angle of Cumberland, where it turns to north-east, and extending towards the Susquehanna, separates Cumberland from Adams and York counties. About six miles below Harrisburg, the Blue Ridge, is pierced or broken by the Susquehanna, and again rising below the mouth of Swatara, crosses the southern angle of Dauphin; thence known as the Cone-wago hills, separates Lebanon from Lancaster county, enters Berks, and reaches the Schuylkill at Reading. Continuing through Berks, Lehigh, and Northampton counties, the Blue Ridge passes Allentown, Bethlehem, and Easton, is again interrupted by the Delaware, below the latter town. Extending through Sussex county, the Blue Ridge enters New-York, and is finally terminated in the Shawangunk, on the west side of Hudson river, and amongst the branches of the Walkill.

In one respect, the South-east mountain and Blue Ridge, in Pennsylvania and New-Jersey, differ from other sections of the Appalachian system. The two chains we have noticed, are formed of links more detached, than are those more remote from the Atlantic ocean; but, otherwise in respect to component matter, range, and vegetation, are in every place well marked sections of the general system. The very unequal elevation of their various parts, may, perhaps, be also adduced, as a characteristic of the South-east mountain and Blue Ridge. The former does not, it is probable, in any part of Pennsylvania or New-Jersey, rise to 1000 feet above the level of the Atlantic ocean, whilst in New-York, at the Highlands, some of the peaks, particularly Butterhill, exceeds 1500 feet elevation above tide water; and in Massachusetts and Vermont, towers to near 3000 feet. If taken generally, the Blue Ridge, in Pennsylvania and New-Jersey, is more elevated than the South-east mountain, yet no particular part of the former rises to an equal elevation with the Highlands, on either bank of the Hudson.

In Maryland, the Blue Ridge assumes a very distinctive aspect, and separating Frederick and Washington counties, is broken by the Potomac at Harper's ferry, below the mouth of Shenandoah. This fine chain crosses, and adorns Virginia, and North and South Carolina. In one remarkable circumstance, the Blue Ridge stands alone amongst the mountain chains of the United States. From the Susquehanna, to the north-west angle of South Carolina, in a distance of upwards of 500 miles, it every where forms a county demarcation.

The third, and in some respects the most remarkable chain of Pennsylvania, is the Kittatinny. Known by divers local names, the Kittatinny, in a survey advancing from south-west to north east, first rises distinctively in Franklin county, and like other chains in the southern margin of Pennsylvania, ranges a little east of north; but inflecting more to the north-east, extends to the Susquehanna, separating Cumberland and Perry counties. Five miles above Harrisburg, the Kittatinny is interrupted by the Susquehanna. Broken also, by the Swatara, the Schuylkill, the Lehigh, and Delaware, the Kittatinny enters New-Jersey, through which it passes into New-York, and forms, by its continuation, the Catsbergs. The general aspect of the Kittatinny is much more continuous than any other mountain chain of Pennsylvania. It is, however, very far from being uniform in elevation, varying from 800, to perhaps 1500 feet above tide water.

North-west from the Kittatinny, though more elevated, the chains are much less distinctly defined. Between the Kittatinny mountain, and the north branch of Susquehanna river, the intermediate country is in a great part composed of high rugged mountains, and narrow, deep, and precipitous valleys. This is the most sterile and least improvable part of Pennsylvania; but it is the region producing the most extensive masses of Anthracite coal, known on the globe.

The confusion in the natural arrangement of the Anthracite* section of Pennsylvania, is more apparent than real. The Kittatinny mountain and Susquehanna river, lie nearly parallel upwards of seventy miles; distant from each other about 35 miles. The intervening space is filled by lateral chains, rising in many places, far above any part of the Kittatinny. Amongst these chains, two are worthy of particular notice, and serve, pre-eminently to elucidate the very peculiar topography of interior Pennsylvania.

Bedford and Franklin counties are separated by a chain,

* I have taken the liberty to introduce this term for the country under review, descriptive of its most abundant and most valuable mineral production.

there known, as Cove mountain. With a change of name, to Tuscarora mountain, the latter chain separates Franklin from Huntingdon, and Perry from Mifflin, and reaches the Susquehanna nearly opposite the southern extremity of Northumberland county. Rising again below the Mahantango river, and broken into vast links, the chain divides into nearly equal parts, the space between the Kittatinny mountains and the main branch of Susquehanna river. Broad mountain passed on the road, from Easton and Bethlehem to Berwick, is one of the great links of this central chain.* With its extension north-east, towards the Delaware, I am unacquainted.

More accurate surveys would, it is more than probable, identify, Sideling hill, of Bedford county, Jack's mountain, of Huntingdon and Mifflin, and the central chains of Union, Columbia, and Luzerne counties. The chain which rises on both banks of the Susquehanna, in Luzerne, is amongst the most interesting features, not only in the United States, but the world. The very peculiar structure of this valley will be noticed more appropriately, when treating of the rivers of that part of Pennsylvania. In the present instance, it is the mountains we have before us, and to which our attention is directed. Below Sunbury, a chain commences, or if my supposition is correct, is continued up the Susquehanna, along its left shore; this chain is crossed by the river above Danville, and again above Catawissa. From the latter place, the chain stretches to the north-east, through Columbia, enters Luzerne by the name of Nescopeck mountain, and mingles ultimately with other chains, and is terminated towards the southern angle of Wayne county. Nearly parallel to the Nescopeck, and with a comparatively narrow intervening valley, another chain leaves the Susquehanna, above the borough of Northumberland, and traversing Northumberland and Columbia counties, enters Luzerne, and is broken by the Susquehanna sixteen miles below Wilkes-Barré. Skirting the left bank about eight miles, it is again crossed by the river, and continuing its course north-east, passes about two and a half miles from and opposite Wilkes-Barré. Preserving its course north-east, it is for the third and last time, crossed by the Susquehanna, above the mouth of Lackawannock creek, ten miles above Wilkes-Barré, and stretching towards the Delaware, is lost in Wayne county. Beyond the main branch of Susquehanna, to the

* Broad mountain I found considerably more elevated than Kittatinny. When on the highest part of the eastern slope of the former, the Blue Ridge was distinctly visible to an immense distance over the latter. I am inclined to consider the summit of Broad mountain elevated at least 2500 feet above tide water.

north-west, the chains lie nearly parallel to those south-east from that river. The structure of the country, on both sides of the Susquehanna nearly the same. The yet discovered mines of Anthracite coal, advancing from south-east to north-west, cease, in the chain immediately opposite Wilkes-Barré.

To the eye, the region included between the west branch of Susquehanna, and the Potomac, bears a strong analogy to that between the west and north branches of Susquehanna, but a minute scrutiny exposes a great change advancing south-west towards the borders of Maryland. Soil and vegetation both differ materially. The beech, hemlock, and sugar-maple forests, are succeeded, in the valleys, by oak, hickory, and elm. Thus far the entire drain of Pennsylvania is into the Atlantic ocean. The chain called the Allegany, forms, in the southern parts of Pennsylvania, the dividing ridge between the Atlantic slope and the valley of Ohio.

Allegany mountain has, no doubt from this circumstance, received its pre-eminence amongst the mountain chains of Pennsylvania, Maryland, and Virginia. Only about sixty miles of its range in the former state, however, does separate the sources of the streams of the two great natural sections, the Atlantic Slope and Ohio valley. The Allegany chain leaving Allegany county, in Maryland, separates Bedford and Somerset counties, and extending in a northerly direction, also separates the north-west part of Bedford from the south-east part of Cambria county. At the extreme northern angle of Bedford, the Allegany turns to north-east, and is thence drained on both sides by the tributary streams of the Susquehanna. Discharging the waters of the west branch to the north-west, and those of the Juniata and Bald Eagle rivers to the south-east; the Allegany reaches the west branch of Susquehanna at the mouth of Bald Eagle river.

Here, once more, the defect of our maps are strikingly apparent. Lycoming county is delineated as if no mountain chains traversed its surface. This is not the fact, though too little is known of that part of Pennsylvania, to admit a classification of its mountains. If I was to hazard a conjecture, I should make the chain which crosses the Susquehanna in Bradford county, near to, and below Towanda, the continuation of the Allegany. It may be remarked, that it is only in a few places east of, and those immediately in its spurs, that bituminous coal has been hitherto discovered in Pennsylvania on the Atlantic slope; whilst this mineral abounds north-west from the Allegany chain. This locality of bituminous coal

prevails across the whole state, and is found from near Towanda, in Pennsylvania, into Maryland.*

How far, and to what extent, the bituminous coal formation, spreads into Virginia, I am unable to determine. The Allegany chain may, in the existing state of our mineralogical knowledge, be viewed as the limit between the two species of coal in Pennsylvania.

Whatever may be the elevation of its summit, the base of the Allegany chain, between Bedford, and Somerset, and Cambria counties, constitutes the height of land between the Ohio river and Atlantic tides; and forms also, a similar demarcation in Maryland. This circumstance is entitled to our serious notice, from this region being the intended route of the Chesapeake and Ohio canal. The summit level, or Cumberland road, as given by Mr. Schriver, is 2825 feet.

As a mountain chain, the Allegany yields in grandeur of scenery, and in elevation above its base, to not only the Broad mountain, but to many other chains of the Appalachian system.

Chesnut Ridge is the next chain west of the Allegany; the two chains extending nearly parallel, and about twenty miles asunder. Though comparatively humble in respect to elevation, Chesnut Ridge is one of the most extended chains of the system to which it appertains; reaching by various local names over Virginia, into Tennessee, and most probably into Alabama. As placed on our maps, Chesnut Ridge enters Pennsylvania at the north-west angle of Maryland, and ranging a little east of north, forms the boundary between Union and Somerset; thence between Westmoreland and Somerset, and finally between the north-east angle of Westmoreland and the south-west of Cambria county. At the extreme north-east angle of Westmoreland, the Chesnut Ridge reaches the Kiskiminitas river; and as delineated, its termination. So far from being so in nature, this chain preserves its identity through the state farther north than any other chain of the Appalachian system.

Laurel Hill is the last chain of the system in Pennsylvania. What has been already observed respecting the comparatively depressed chains nearest the Atlantic ocean, may be repeated

* In June 1823, I visited Towanda, and was there informed, that bituminous coal of the best quality, and in great quantity, had been discovered in the mountain valleys south-west from that place. In September and October, of the same year, I travelled over Allegany county, in Maryland, and found bituminous coal of very superior quality, in common use in the vicinity of the Allegany ridge. It is first seen near Frostburg, eleven miles from Cumberland; it, however, abounds in the vicinity. Some of the strata I examined, and found them about an average of five feet, and in secondary formation.

respecting the Chesnut Ridge, and the Laurel Hill; that, though not very elevated, they nevertheless exist as well defined mountain chains. The latter is a very extended branch of the system, reaching from the northern part of Pennsylvania into Alabama. This chain traverses Virginia by various names; separates Virginia from Kentucky as Cumberland mountain; traverses Tennessee, and penetrates Alabama under the latter term; and interrupted by Tennessee river, it forms the Muscle Shoals, and is imperceptibly merged into the central hills of Alabama. Like many others, this very lengthened chain is delineated defectively in every map of Pennsylvania I have seen. Similar to Chesnut Ridge, Laurel Hill is terminated, on our maps, near the Kiskiminitas, though in reality extending to near the south boundary of New-York.

In addition to the great chains we have been surveying, many of minor importance might be noted; but we have deemed a view of the most striking parts sufficient.

If engrouped into one view, the mountains of Pennsylvania exhibit many very interesting points of observation. The Appalachian system is here upwards of one hundred and fifty miles wide. The particular chains do not average more than three miles, if so much, in breadth.

Before proceeding farther in our review, I may be permitted to observe, that mountains are considered as the superlative of hills. In not only Pennsylvania, but in the Appalachian system generally, hills and mountains are not only specifically, but generically distinct features of nature. If this was not the case, the slope would, in most cases, gradually rise from the mouths to the sources of rivers, and no regular ranges of elevated ground could be found crossing the streams obliquely. According to common opinion, the mountains of the United States form the dividing ridge between the waters of the Atlantic slope, and those of the Mississippi and St. Lawrence basins. So far, however, are the mountains from constituting the separating line of the waters, that the real dividing ridge, if it can be so called, crosses the mountains diagonally.*

The Appalachian system is formed, as we have seen, by a number of collateral chains, lying nearly parallel; each chain is again formed by ridges, which interlocking, or interrupted by rivers, extend generally in a similar direction with the chain to which they particularly appertain. The chains differ materially from each other in elevation and in continuity. In some of the chains, at each side of the system, the parts are

* See the maps.

of very unequal height above their bases, and of tide water. The South-east mountain and Blue Ridge are prominent examples.*

The attendant map, coloured to exhibit the formations geologically, will save much verbal description, and paint to the eye the structure of Pennsylvania. By a reference to the geological map, it will be seen that the rock formations obey neither the mountain system nor river valleys.

In the correct solution of any question arising out of the advance or distribution of population, the determination of the real surface covered with mountains, would afford extremely satisfactory element. As far as my own personal observation, and the present state of our geographical knowledge afford data, I have estimated the extent of mountain base in Pennsylvania; and on the best maps, carefully measuring every chain, the entire length produced, amounts to a small excess above 2250 miles. If the latter sum is, however, taken, and three miles allowed for the mean breadth of the chains, the mountain area will be 6750 square miles, or very nearly one-seventh part of the superficies of the state.

Before examining the formations, the component soils and rocks, we proceed to view the river valleys of Pennsylvania. The state is drained by the Delaware, Susquehanna, Ohio, Potomac, and Genessee rivers, and at the extreme north-west angle by lake Erie.

The respective river basins, or rather the sections included in Pennsylvania, are of very unequal extent. Delaware, Susquehanna, and Ohio, include an immense proportion of the whole state, and subdivide it naturally into the eastern, middle, and western river sections.

The following tables give the respective area of each, and also the smaller sections of Potomac, Genessee, and Erie.

Delaware river drains the counties of

					Square Miles.	Acres.
Berks,	-	-	-	-	950	608,000
Bucks,	-	-	-	-	640	409,600
Chester $\frac{3}{4}$,	-	-	-	-	550	352,000
Delaware,	-	-	-	-	180	115,200
Lebanon $\frac{1}{8}$,	-	-	-	-	40	25,600
Lehigh,	-	-	-	-	360	230,400
Luzerne,	-	-	-	-	180	115,200
Montgomery,	-	-	-	-	450	288,000
<i>Amount carried over,</i>					3350	2,144,000

* See page 12—15.

		Square Miles.	Acres.
<i>Amount brought forward,</i>		3350	2,144,000
Northampton,	- - - -	1100	704,000
Philadelphia,	- - - -	120	76,800
Pike,	- - - -	850	544,000
Schuylkill $\frac{5}{8}$,	- - - -	500	320,000
Wayne,	- - - -	790	505,600
		6710	4,294,400

Susquehanna drains the counties of

Adams $\frac{3}{5}$,	- - - -	350	224,000
Bedford $\frac{3}{5}$,	- - - -	1000	640,000
Bradford,	- - - -	1260	806,400
Cambria $\frac{2}{5}$,	- - - -	330	211,200
Centre,	- - - -	1460	934,400
Chester $\frac{1}{4}$,	- - - -	180	111,200
Clearfield $\frac{9}{10}$,	- - - -	1450	928,000
Columbia,	- - - -	630	403,200
Cumberland,	- - - -	630	403,200
Dauphin,	- - - -	550	352,000
Franklin $\frac{1}{3}$,	- - - -	280	179,200
Huntingdon,	- - - -	1280	819,200
Indiana $\frac{1}{10}$,	- - - -	80	51,200
Lebanon $\frac{7}{8}$,	- - - -	280	179,200
Luzerne $\frac{9}{10}$,	- - - -	1920	1,228,800
Lycoming,	- - - -	2510	1,606,400
McKean $\frac{1}{4}$,	- - - -	380	243,200
Mifflin,	- - - -	910	582,400
Northumberland,	- - - -	500	320,000
Perry,	- - - -	550	352,000
Potter $\frac{5}{8}$,	- - - -	750	480,000
Schuylkill $\frac{3}{8}$,	- - - -	300	192,000
Susquehanna,	- - - -	910	582,400
Tioga,	- - - -	1180	755,200
Union,	- - - -	600	384,000
York,	- - - -	1120	716,800
		21,390	13,685,600

Gennssee drains $\frac{1}{8}$ of Potter,	-	150	96,000
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Potomac drains

Adams $\frac{2}{5}$,	- - - -	220	140,800
Bedford $\frac{2}{5}$,	- - - -	630	403,200
Franklin $\frac{2}{3}$,	- - - -	560	358,400
Somerset $\frac{1}{6}$,	- - - -	180	115,200
		1590	1,017,600

	Square Miles.	Acres.
Lake Erie drains $\frac{1}{2}$ of Erie county,	380	243,200

Ohio river drains the counties of

Alleghany,	- - - - -	810	518,400
Armstrong,	- - - - -	1010	646,400
Beaver,	- - - - -	690	441,600
Butler,	- - - - -	850	544,000
Cambria $\frac{3}{5}$,	- - - - -	800	512,000
Clearfield $\frac{1}{10}$,	- - - - -	160	102,400
Crawford,	- - - - -	1040	665,600
Erie $\frac{1}{2}$,	- - - - -	380	243,200
Fayette,	- - - - -	900	576,000
Greene,	- - - - -	640	409,600
Indiana $\frac{9}{10}$,	- - - - -	680	435,200
Jefferson,	- - - - -	1280	819,200
McKean $\frac{3}{4}$,	- - - - -	1140	729,600
Mercer,	- - - - -	880	563,200
Potter $\frac{1}{4}$,	- - - - -	520	204,800
Somerset $\frac{5}{8}$,	- - - - -	800	512,000
Venango,	- - - - -	1200	768,000
Warren,	- - - - -	900	576,000
Washington,	- - - - -	900	576,000
Westmoreland,	- - - - -	1180	755,200
		16,760	10,598,400

SUMMARY.

Delaware drains,	- - - - -	6,710	4,294,400
Susquehanna,	- - - - -	21,390	13,685,600
Genessee,	- - - - -	150	96,000
Potomac,	- - - - -	1,590	1,017,600
Ohio,	- - - - -	16,760	10,598,400
Lake Erie,*	- - - - -	380	243,200
		46,980	29,935,200

Without reference to the comparatively minor river sections of Potomac, Genessee, and Erie, the surface of Pennsylvania is subdivided into three river valleys, Delaware, Susquehanna,

* This aggregate still falls short of the real area of Pennsylvania, though considerable allowance is made for the superficies of the southern and central irregular counties. The estimates are made in round numbers, therefore the fractions do not, in many cases, exactly agree with each other.

and Ohio. The respective area is rendered sensible to the eye by the maps prefixed to this number.

The range of the rivers of Pennsylvania is one of the most interesting subjects in all physical geography. It may be assumed as a general principle, that the mountain streams particularly, either flow north-east or south-west, along the mountain valleys, or directly at right angles to that course, through the mountain chains. The conformity of the river courses to that of the mountains, is in a striking manner obvious in the Delaware and Susquehanna.

The Delaware rises by two branches in the western spurs of the Catsbergs. The Cookquago to the north-west, and the Popachton to the south-east, flow from their sources south-west, about fifty miles, draining Delaware county in New-York. Reaching within about five miles from the north-east angle of Pennsylvania, the Cookquago turns to south-east, and continuing that course five or six miles, receives the Popachton. The united streams maintain a south-east course, fifty miles, to the mouth of the Nevisink, and northern extremity of New-Jersey. The Delaware here touches, and washes the north-west foot of the Kittatinny chain, along which it turns to the south-west, thirty-five miles, to the mouth of Broadhead's creek, from Pike and Northampton counties. Winding to the south, the Delaware, below the entrance of Broadhead's creek, breaks through the Kittatinny, and enters the fine valley between that chain and the Blue Ridge. At the north-west base of the latter, at Easton, the river again forms a mountain pass, and five miles farther down, another through the South-east mountain. At the south-east base of the latter chain, this river once more assumes a south-east course after having meandered through the Kittatinny valley about thirty miles.

At Trenton, thirty-five miles below the South-east mountain, the Delaware passes the primitive ledge, and meets the tide; and five miles below, near Bristol and Bordentown, again turns to south-west. Passing along or near the primitive rock, this now widening stream continues about forty miles, receiving near Philadelphia, the Schuylkill from the north-west. Forming its last great bend, five or six miles below Newcastle, the bay of Delaware opens into the Atlantic ocean in a south-east direction.

The entire length of the Delaware is, by comparative courses, from the Catsbergs to the Atlantic ocean, three hundred and ten miles, not quite one half being tide water. Though rolling over numerous rapids, no cataracts, in the proper meaning of the term, interrupt the navigation of the Delaware,

which at times of moderately high water, reach, by both constituent branches, into New-York. The general course is, with a trifling deviation, to the west, south, and north; the sources of the Cookquago and Popachton, being very nearly in similar longitude with Cape May. When viewed on a map, the various sections of this river have the appearance of having been arranged artificially: the two lower bends strongly proving the geological influence of the mountain system.* Though but little elevated above the ordinary surface of the country through which it passes, the great primitive ledge pursues a direction remarkably similar to that of the Appalachian chains. From Bristol to its terminating bend below New-castle, the Delaware river flows down the south-east margin of the primitive, separating the sandy shores of New-Jersey from the micaceous soil of Pennsylvania and Delaware.

Like every other primary stream of the Atlantic slope, the navigation of the Delaware is less facile than in the early stage of settlement,† but admits vessels of considerable draft to the foot of its lowest rapid; and ships of the largest class to near the mouth of the Schuylkill.

Similar to the Susquehanna and the Potomac, the Delaware receives nearly all its large tributary streams from the north-west. Of these confluent only two, the Lehigh and Schuylkill, are of considerable magnitude.

From the position of their valleys as channels of intercommunication, and from the mineral treasures found along their mountain sources, the Schuylkill and Lehigh have already become of great importance. The Lehigh rises by various mountain branches in Northampton, Pike, Wayne, and Luzerne counties; uniting below Stoddartsville, and forming a small but precipitous river current, which pouring first to the south-west, gradually turns south, and south-east passes Mauchchunk village, and winding between mountain masses, finally breaks through the Kittatinny, and continuing to the south-east meets the north-west base of the Blue Ridge at Allentown. Here it turns to the north-east along the base of the latter chain, and passing Bethlehem joins the Delaware at Easton. The Lehigh is truly a mountain torrent; there is

* See page 12.

† No adequate attention, in the United States, has yet been paid to this very serious fact. It is well attested by historical record, that agriculture, by opening the soil to the action of rains and consequent floods, must annually increase the impediments to navigation in tide water rivers. The increment of alluvial deposit, is always first and most sensibly felt, at the point of admixture between the down stream and ocean tide. The means of obviating this evil must, in the lapse of no great time, become a prominent subject of statistical inquiry.

no other stream of equal length in the United States which presents so great difference of level between the points of source and discharge.

In a comparative course, it is about twenty-five miles from Stoddartsville to Mauch Chunk, and the fall in the intermediate distance 845 feet. Ten miles in a direct line below Mauch Chunk, the Lehigh passes the Kittatinny, and falls 245 feet in that short space. From the Lehigh Water Gap, or passage through the Kittatinny, to its junction with the Delaware, it falls 205 feet, in a comparative course of thirty-five miles. The entire fall from Stoddartsville to Easton, 1210 feet; comparative course seventy miles. From the junction of its constituent branches below Stoddartsville to its extreme source, about fifteen or twenty miles, giving an entire comparative length to the Lehigh, of near 100 miles. The fall above Stoddartsville, probably amounts to 500 feet; and if so, this rapid river falls upwards of 1700 feet in 100 miles; and what may be considered in a peculiar manner remarkable, no actual cataract worthy notice, exists in all its course. Above the Water Gap, the bed of the Lehigh lies at the base of steep or precipitous mountains, rising in most places from the margin of the stream. The scenery is in a peculiar manner wild, bold, picturesque, and romantic. Below the Kittatinny, the features of nature are less grand along the banks, but still follow, in a rich succession of strongly contrasted and elegant landscape. The varied character of its shores is preserved to its final egress into its recipient at Easton, and at all future time this river will afford an ample reward to the traveller.

The Lehigh is now rendered navigable by dams, and falling locks for some distance above Mauch Chunk.* This very useful and arduous work has been effected by the Lehigh Coal and Navigation Company, under the direction of Messrs. White and Hazard, the superintending engineers. The discovery of Anthracite coal, made in the vicinity, led to the improvement of the river navigation. By reference to the maps, it will be seen, that the coal strata between the Lehigh and Schuylkill, are in the transition or inclined region of rocks. It may be observed that rivers flowing over transition rocks, are, in most instances, very much impeded by rapids, but very seldom have perpendicular falls. Real cataracts almost uniformly exist in secondary formation.

The Schuylkill rises in and drains about the five-eighths of Schuylkill county. Formed by two branches, which unite im-

* A detailed description of this navigation will be given in a future number of the Repository.

mediately above and pass through the Kittatinny mountain seven miles south-east from Orwicksburg. Below the Water Gap, or passage through the Kittatinny, the Schuylkill turns to nearly south, in which direction it continues through the Blue Ridge at Reading, after having received Maiden creek from the north-east, and the Tulpehocken above that town, from the north-west. Below the Blue Ridge this river again winds to south-east, passes the South-east mountain above Pottstown, and receiving the Perkiomen and some lesser creeks from the north, crosses the primitive ledge above, and joins the Delaware below Philadelphia.

The entire length of the Schuylkill, by comparative courses, is about one hundred miles, twenty above and eighty below the Kittatinny mountains.

A strong resemblance is perceivable between the Schuylkill and the Lehigh, though the scenery along the former is less rugged than that which skirts the latter stream. Flowing from the same mountain valley, the soil and mineral productions are in a great measure similar on the two rivers. The subject will be more amply noticed in a subsequent part of the Repository; but I may here observe, that in the distribution of the Anthracite coal, very great diversity exists between the situation of the mass on the Mauch Chunk mountain, and any other with which I have been made acquainted, in either the basins of Delaware or Susquehanna. That on the Mauch Chunk lies in an immense body on the ridge of the mountain, with little of any inclination to the horizon, and with a very thin stratum of incumbent earth. The mines on the Schuylkill, and those near Wilkes-Barré, dip like the other accompanying incumbent and decumbent strata.

The Schuylkill is now navigable by canals and locks to Reading, and will soon be so to the coal mines, ten miles above Orwicksburg. The Union Canal Company is employed also in completing a connection between the Susquehanna and Schuylkill, by the Swatara and Tulpehocken valleys.

The Susquehanna, in many other respects remarkable, is peculiarly so as rising on the central secondary formation, and piercing the mountains obliquely, and reaching the Atlantic tides, after having passed all the intermediate formations. This immense stream enters Pennsylvania by two great branches, the Susquehanna proper, and the Chemung or Tioga. I have often had occasion to observe, that every river had its own individual physiognomy. This observation applies, in a very striking manner, to the Susquehanna. The general bends of the latter stream conform, in an astonishing degree, to those of the Delaware; and a comparative view on a map must con-

vince every mind that some general structure of the country through which they flow, must have modified and directed the respective courses of those two rivers. Below their junction at Tioga Point, the united streams of the Susquehanna and Chemung flow a little south of east, fifteen miles, to the foot of the Appalachian system, below Towanda. Leaving the secondary, and entering on the transition, the now considerable stream turns to south-east, and following that general course fifty miles, breaks through several chains, and finally at the mouth of the Lackawannock, nine miles above Wilkes-Barré, enters the Wyoming valley, and turns to south-west; continuing the latter course near seventy miles down the mountain valleys to Northumberland and Sunbury, and to the mouth of the West branch. In the entire distance from Tioga Point to Sunbury, the Susquehanna receives no tributary stream of forty miles direct length; the Towanda, Wyalussing, Tunkhannock, Lackawannock, Fishing Creek, and some lesser branches, are mere mountain creeks, rapid, but not more than from twenty-five to fifty-five miles general course.

Including all its higher north-east branches, the Susquehanna is peculiar in the structure of its valleys. Wide bottoms of two, and sometimes three stages, spread along the convex side of the bends, whilst mountains of more or less elevation, rise on both sides of these spreading vales. Exuberant fertility is, at a single step, followed by rocky and sterile steepes. The natural timber of the bottoms in a great measure different from that on the mountains. In the former, sugar-maple, black walnut, elm, beech, and others trees indicative of a productive soil abound; on the slopes of the mountains, pine, oak, and chesnut, and above the Lawahannock, hemlock, are the prevalent timber trees. As a navigable stream, the Susquehanna is much less interrupted by rapids or dangerous shoals, than from the tortuous course it pursues through an extensive mountain system could be expected. It is also remarkable, that where the various branches of this river pass the respective chains, rapids seldom, and perpendicular falls, no where exist.

The Western branch is, in all its extent, a river of Pennsylvania. Rising far within the secondary formation, its extreme western source in Indiana, reaches within less than thirty-five miles from the Allegany river, at Kittanning. Flowing north-east about seventy miles across Clearfield, it receives the Sinnamahoning from the north-west in the south-west angle of Lycoming county. Below its junction with the Sinnamahoning, the West branch continues north-east fifteen miles, and thence to south-east twenty miles, to the mouth of Bald Eagle

creek from Centre county. Below Bald Eagle, the course is a little north of east, thirty-five miles, to Pennsborough, receiving in the intermediate distance, from the north, Pine creek, Lycoming, and Loyalsock. From Pennsborough the course is nearly south, twenty-five miles, to the mouth of the North-east branch, and thirty-five from thence to that of the Juniata. It may be observed that this long southern reach of the Susquehanna has its counterpart in the Delaware. About eight miles below the entrance of Juniata, the Susquehanna, having again assumed a south-eastern course, passes the Kittatinny mountains; and ten miles below that chain, the Blue Ridge. Maintaining the latter course sixty miles below the Blue Ridge, this great river is lost in the tides of Chesapeake bay.*

Juniata, the south-west branch of Susquehanna, rises in and drains the northern part of Bedford county. The sources of the Juniata are in the eastern slopes of the Allegany chain; and flowing twenty miles nearly east, passes Bedford, and breaking through several mountain chains, turns abruptly to a course a little east of north, forty miles, receives the Frankstown branch below and near the borough of Huntingdon, in Huntingdon county. The general course of Frankstown branch is from the north-west to south-east, and below their junction, the united streams follow that course fifteen miles, breaking through Jack's mountain. Again inflected to north-east, the Juniata leaves Huntingdon and enters Mifflin county, and pursuing that direction near thirty miles, passes Lewis town, and again winding to south-east, breaks through Shade mountain into Tuscarora valley. Crossing that valley, in a course of ten miles, reaches the north-west base of Tuscarora mountain, down which it flows about ten miles, where, near Millerstown, it pierces the latter mountain, and once more turning to south-east, enters on Perry county, over which it flows fifteen miles, where it finally mingles with the Susquehanna.

Like every other branch of the Susquehanna, the Juniata is as remarkable for its rapids as for its exemption from perpendicular falls. Though originating in, and having its entire course amongst craggy mountains, it is navigable, at high water, to near Bedford. In speculative opinions on the means,

* It was an observation of the late Mr. Latrobe, that Chesapeake Bay itself was only the continuation of the Susquehanna, below the head of tide water. If this geographical, or rather hydrographical principle is correct, then the Patapsco, Patuxent, Potomac, Rappahannock, York, and James Rivers, are confluent of the Susquehanna, which, with such extension, would constitute the largest river of the world in proportion to length of course.

and most suitable route, to form a water communication between the Chesapeake basin and the valley of Ohio, the Juniata has been conspicuously held in view. In such investigations, relative height above the ocean is a most important element. The close of this article will shew the general difference of level between the sources and mouths of the Pennsylvania rivers, as far as they have been ascertained with any adequate precision.

Potomac, though drawing but a very trivial part of its waters from Pennsylvania, demands attention in this sketch, from the probability that its channel may be chosen by the general government, as a canal route between the Atlantic slope and Ohio valley. The Potomac is a real mountain river, deriving its sources from nearly the highest table land of the Appalachian system. The extreme western fountain of the north branch of Potomac, is in the south-east slopes of the Allegany or Backbone chain, N. Lat. $39^{\circ} 10'$. Flowing north-east along the foot of Allegany to the mouth of Savage creek, or rather river, thirty-five miles, the Potomac turns to south-east through Will's mountain into Cumberland valley, which it crosses about ten miles, where it is again turned to north-east by another lateral chain. Continuing north-east twenty miles, reaches the town of Cumberland. At the latter place occurs another abrupt bend, through a mountain pass, into the South Branch valley. The latter stream is of much greater magnitude than that of the Potomac proper. Rising by numerous creeks in Pendleton county, Virginia, as far south as N. Lat. $38^{\circ} 20'$. In a general comparative course of one hundred miles, the South branch becomes a fine navigable river. Below the mouth of the South branch, the Potomac gradually re-assumes a north-east direction, which it preserves, about thirty miles, to Hancock's town, where it turns to south-east, and pierces Sideling hill chain, and in a few miles lower down the Kittatinny, entering the Great Conococheague valley. From Hancock's town to the entrance of Conococheague creek, the course of the Potomac is a little south of east twenty-five miles. Below the latter creek, the river inclines to south-east by south, twenty-five miles, to the north-west base of the Blue Ridge, and mouth of Shenandoah.

Rising in, and draining Augusta county, in Virginia, the South branch of Shenandoah rises below N. Lat. 38° . Augmented by innumerable mountain streams, it flows from Augusta, over Rockingham and Shenandoah, into Frederick county, where joined by the North branch, and continuing a general course of north-east, over Frederick and Jefferson counties, unites with the Potomac at Harper's ferry, after a

comparative course of about one hundred and fifty miles. At their junction, the volume of the Shenandoah yields very little in magnitude to that of the Potomac. The united waters immediately break through the Blue Ridge, and continuing South-east about fifty miles, mingles with the Chesapeake tides at Georgetown, within the District of Columbia. The general comparative course of the Potomac above tide water, is, by the south branch, about two hundred, by the Potomac proper, one hundred and fifty, and by the Shenandoah one hundred and sixty miles.*

Like those of the Delaware and Susquehanna, the great confluent of the Potomac are from the right bank. Savage river and Will's creek, from Allegany; Conococheague, from Washington; and Monocacy from Frederick county in Maryland, are comparatively trivial, when compared with the branches of Potomac derived from Virginia.

At Cumberland, Potomac reaches within five, and at Hancock's town, within two miles of the south boundary of Pennsylvania. The extent of the Potomac valley included, in that state, is given in the table, page 22.

Leaving the Atlantic slope, and viewing a general map of the United States, we at once perceive a great river valley, stretching from Pocahontas county, Virginia, over western Pennsylvania, into New-York. This valley extends nearly due north and south, at an angle of about forty-five degrees, to the range of the Appalachian mountains, and reaches from N. Lat. $38^{\circ} 30'$, to N. Lat. $42^{\circ} 20'$. The extremes giving source to two rivers; that of the north to the Allegany, and that of the south to the Monongahela. These two streams flowing directly towards each other, meet at Pittsburg, very nearly at the middle point of the valley. Their united water taking the name of Ohio, turns to the west, or rather north-west, as far as the entrance of Big Beaver river. With a very partial exception, western Pennsylvania is drained by the Allegany and Monongahela.

Though the lower part of its course is but little inclined west of south, the general bends of the Allegany conform, in a very striking manner, to the structure of the Delaware, Susquehanna, and Potomac, and gives another conclusive proof of the extension of the Appalachian system far beyond where it protrudes elevated mountain chains. Having its source in Potter county, in Pennsylvania, and interlocking with the head branches of the Susquehanna and Genessee, the Allegany

* These courses are comparative, and fall, in general result, nearly one-half short of that by the particular bends.

flows north-west about fifty miles, into Cataaugus county, New-York. Abruptly turning to south-west, and preserving that general course nearly one hundred miles, and receiving French creek from the north-west, it thence bends to south-east forty miles, to the mouth of the Mahoning. About the middle of the latter course, Clarion river and Red Bank creek, two large branches, enter from the north-east. From Mahoning to Pittsburg, the general course is again south-west about fifty miles.

Kiskiminitas, a very considerable accessory stream of the Allegany river, rises in the mountain valley between the Alleghany and Chesnut Ridge chains, and flowing north-west, breaks through Chesnut Ridge and Laurel Hill, and after a comparative course of seventy-five miles, unites with the Alleghany, near midway between the mouth of Mahoning and Pittsburg.

Mahoning and Red Bank creeks, have their sources in Chesnut Ridge, and with each, a course of about thirty-five miles; the former north-west, and the latter south-west, join the Alleghany in Armstrong county. Clarion river* has interlocking sources with those of Sinnemahoning and the Alleghany river. The Red Bank rises in the same region with Clarion river and Sinnemahoning; and Mahoning with Red Bank and the west branch of Susquehanna.

In point of surface drained, Kiskiminitas is the largest confluent of the Alleghany, and having interlocking sources with those of the west branch of Susquehanna, Juniata, and Youghiogany, seems to offer to the eye the most facile link of intercommunication between the valleys of the Ohio and Susquehanna, north of the Potomac.

Alleghany river receives but two confluent sources of moment from the right; those are French and Conewango creeks. The latter rises in Chatauque county, New-York, by three branches, the Chatauque, Casadauga, and Conewango. These unite in New-York, and forming a navigable stream, assumes a south course, enters Warren county, Pennsylvania, and falls into Alleghany at the town of Warren, after a comparative course of forty miles.

French creek has its source in the extreme south-west angle of New-York, and increased by numerous branches from Erie and Crawford counties, Pennsylvania, forms a navigable river at Meadville. Flowing to the south-east from Mead-

* Toby's creek, as formerly designated, I am informed, is known in the county it drains, by the name of Clarion river. The change is in every respect an improvement, as a stream of more than seventy miles comparative course, cannot with any propriety be called a creek.

ville, twenty-five miles, French creek is lost in Allegany river, at Franklin, in Venango county. The entire comparative course of French creek is about eighty miles.

There is no other feature in the hydrography of the United States more remarkable than the country from which Chataouque and French creek have their sources. The extreme north-west waters of the former, flow from within three, and those of the latter from within five miles, of the margin of Lake Erie. This very important fact will be more particularly noticed, and its bearing on navigable communication shewn, in the sequel.

Taken as in a state of nature, the Allegany and its branches are the recipients of the northern part of the great western basin of Pennsylvania, and are but little impeded by falls, though rapid as to current, from the declivity of their plane of motion.

The Monongahela, formed by two branches, the Monongahela proper, and Cheat river, rising in Pocahontas, Randolph, Harrison, Lewis, Monongahela, and Preston counties, of Virginia, unite two miles within the south boundary of Pennsylvania. The general length, above Pennsylvania, about one hundred miles, in nearly a north course. Preserving the latter direction, sixty miles in Pennsylvania, and receiving the Youghiogany from the south-east, the Monongahela mingles with the Allegany at Pittsburg, and form the Ohio.

The various branches of the Monongahela, which derive their sources from the western chains of the Appalachian system, similar to the Potomac, claim a more than ordinary share of attention, as presenting the connecting links of a proposed line of canal improvement. Cheat river flows from the north-western slope of Allegany mountain, and draining the eastern part of Randolph county, passes Chesnut Ridge, enters Preston county, and there a navigable stream continues north, to within five miles from the south boundary of Pennsylvania. Turning to the west through Laurel Hill, and thence north-west, crosses the south line of Pennsylvania, and unites with Monongahela.

Youghiogany rises in the extreme south-western angle of Maryland, between the sources of Potomac and Cheat rivers. Pursuing a northern course over Maryland into Pennsylvania, and augmented by Castleman's river, its northern branch, the Youghiogany, turns to north-west, and breaking through Chesnut Ridge and Laurel Hill, joins the Monongahela at M'Keesport, eighteen miles above Pittsburg. This is a fine mountain stream, which in all seasons, except in periods of long drought, contains more than sufficient water for a supply of the most

capacious canal; general comparative course, about one hundred miles; thirty in Maryland, and seventy in Pennsylvania. The Youghiogany heads with the Cheat branch of Monongahela, with the north branch of Potomac, and by Castleman's river, with Juniata and Kiskiminitas. Should the Chesapeake and Ohio Canal be seriously undertaken, the channel of the Youghiogany, from relative position, presents the most direct route to unite the waters of the Potomac with those of Monongahela.*

At Pittsburg, the Ohio is formed, as we have seen, by the confluent waters of Allegany and Monongahela. The former is the principal stream, flowing with a more rapid current than its rival. From Pittsburg to Beaver river, the Ohio pursues a north-west course twenty-five miles; thence winding to the west twenty miles, in which it leaves Pennsylvania, and enters Ohio. Within the latter state, the Ohio river inflects to a course a little west of south, seventy miles, reaching in that direction, nearly the same latitude with the south boundary of Pennsylvania. The peculiar courses of the Monongahela and Ohio, forms one of the most remarkable intermediate peninsulas presented by the topography of the United States. The two streams flow in very nearly opposite directions; the intervening space from thirty-five to forty miles wide, and with a mean length of sixty miles. Though hilly rather than mountainous, this peninsula is elevated to from 600 to 1000 feet in the dividing line of its waters, above the adjacent rivers. A number of creeks, none of which can exceed a comparative course of twenty-five miles, are poured from the interior spine into the respective recipients. The dividing ridge, is evidently continued north of Ohio river, broken by that stream a few miles below Pittsburg. The northern extension is continued, inflecting between the western sources of Allegany, and the eastern sources of Big Beaver river, and is finally lost on the south-eastern shores of Lake Erie; the southern, stretching between the confluents of Ohio and Monongahela rivers, mingles with the Appalachian chains, between the sources of the latter and Little Kenhawa. This ridge is the western buttress of the upper basin of Ohio, and affords a very striking example of the real difference between a chain of hills and one of mountains.

The descent from the rivers to the Western ridge of Pennsylvania is so gradual, and the hills scattered in such promiscuous winding, through the sources of the streams, that an ascent of six or seven hundred feet, in a few miles, is imper-

* See Section III.

ceptible; on the contrary, the mountain chains extend in regular lines uninfluenced, in their direction, by the water courses, and are abrupt and steep in their declivities. The mountains seem to have existed previous to the rivers, whilst the hills appear to have been formed by the abrasion of water.

Big Beaver, the first river which enters Ohio, pours its current from the north, and falls into its recipient, twenty-five miles below the confluence of the Allegany and Monongahela. Big Beaver is formed by the Mahoning, Shenango, Neshanock, and Conequenessing creeks. The Shenango rises in Ashtabula county of Ohio, and Crawford of Pennsylvania, within twelve miles from the south-east shore of Lake Erie, interlocking sources with those of Grand river, Coneaut, and French creek, and pursuing a nearly south course over Mercer, receives the Conequenessing from the north-east, and entering Beaver county, unites with the Mahoning, and forms Big Beaver.

The Mahoning is in reality the main branch; rising in Columbiana, Stark, Trumbull, and Portage counties, Ohio; its course is first nearly north, thirty miles, to near Warren in Trumbull. Winding to south-east, it pursues that course thirty-five miles, entering Pennsylvania in the south-west angle of Mercer, and joining the Shenango at N. Lat. 41° , about two miles within Beaver county. Below the junction of the Mahoning* and Shenango, Big Beaver flows a little east of south, twenty miles, into Ohio river. Conequenessing is the eastern constituent stream of Beaver, draining the peninsula between the Allegany, Ohio, Big Beaver, and Shenango rivers.

The valley of Big Beaver is nearly circular, and about seventy miles diameter; area 3850 square miles. It is worthy of remark, that the general courses are nearly on a direct north-west line; of the Youghiogany, below the mouth of Castleman's river, Monongahela and Ohio, from the mouth of Youghiogany to that of Big Beaver; and the latter and Mahoning, to about three miles above Warren. This range of navigable water is upwards of one hundred and thirty miles direct, and from one hundred and eighty to two hundred miles, following the sinuosities of the streams.

The sources of the Mahoning interlock with those of the Tascarawas branch of Muskingum, and Cayahoga, and Grand river, of Lake Erie.†

We have thus completed a general delineation of the moun-

* The confused nomenclature of the rivers and mountains of the United States, strike the geographer at every step. In the inclosed sketch, we have found two rivers Mahoning, within fifty miles of each other. Such repetitions are frequent, and produce an oppressive perplexity.

† See Section III.

tain chains and river valleys of Pennsylvania, and extended our sketches sufficiently, to give the connections with the adjacent states. This is only to draft the skeleton of the natural geography of the region under review. It remains to examine the component rocks of the mountain chains ; the formation of the mountains and valleys ; the relative slope and height of the mountains and valleys ; and the facilities afforded to natural and artificial transportation by land and water. The geographical section of this number can be only considered as a preface, or introduction to the much more important inquiry which is to follow in the numbers immediately subsequent to the present.

SECTION II.

HISTORY OF PENNSYLVANIA.

CIRCUMSTANCES of a peculiar nature and primary interest, are interwoven, not only into the colonial history of Pennsylvania, but also into that of the parent state, which produced the existence of such a colony. As a colony, it was established under the influence of, and direct emigration of men instigated by motives, in many respects essentially different from those which led to any other English, or indeed any other European colony in America. The primeval character of its founders gave colour and texture to its institutions, and to the social features of society. Pennsylvania continues to exhibit much of the pristine materials of its structure, admixed with other substances more or less discordant. To catch those intermingling shades, and to delineate their varieties with truth of design and justice of colouring, is the duty of the historian. I enter upon the execution of the task, with that undefinable anxiety which all men must feel who engage to perform an enterprise of such magnitude.

Long habituated to consider a competent knowledge of our colonial, as indispensable to a due comprehension of our independent history, I first open that of Pennsylvania, by briefly developing the causes, and tracing the events, which preceded and produced, her political situation and importance, at the epoch of that revolution which eventuated in creating the United States.

It is also a due consideration of the dependence of the individual colonial history of Pennsylvania upon that of her

more ancient sister colonies, that has induced me to preface the latter by a brief sketch of the former.

The English North American colonies were founded upon very dissonant principles, and were of three species :

First, Royal grants, ruled immediately by governors, whose authority emanated from the crown, and who personally represented the king.

Second, Royal proprietary grants, governed in the name of the proprietary.

Third, Voluntary associations of individuals, who, from the outset of their establishment, were ruled by governors of their own choice, and who never submitted to royal negative, either direct or indirect.

The colonies founded under royal grants were, in many respects, proconsular ; for although, in every instance, sooner or later, the colony assumed self-legislation, the royal representative retained the power of absolute veto.

Of the proprietary royal grants, Maryland and Pennsylvania, were very prominent examples. Indeed, in the latter, the extremely complex provisions of its charter, laid the solid foundation for that series of perpetually recurring disputes between the proprietary governors and the provincial assemblies, which distracted the government during the period of its existence as a colony. The vague expressions, also, of both charters, involved the proprietaries, and people of Pennsylvania and Maryland, in an embittered contest respecting their mutual limits, which endured upwards of seventy years, and gave birth to rancorous feelings, which have not yet entirely subsided. The governor's power of inqualified negative, was more frequently used ; particularly in money bills, in Pennsylvania, than in any other English North American colony ; and as will be seen in the sequel, in a great measure nullified the best provisions of the charter. In all the colonies, where it could be exercised, the veto of the representatives of the crown, contributed more than all other causes, to create and foster amongst the colonists, an inveterate spirit of suspicion and resistance. The English North American colonies, although in some respects proconsular, were not, however, provinces formed by assumption or conquest. The original adventurers, and more especially, those who removed to America under the authority of a charter, brought with them all the rights of Englishmen. The value of those immunities were known and cherished. The crown of England, and its minions in America, seem to have been constantly instigated by a spirit of encroachment. Thus, exertions of power on one hand, and stern resistance to its advances on the other,

created the germ of revolution, at the earliest epoch of English settlement on the North American coast. Deriving from the parent country, their language, laws, religious creeds, and their literature, the early settlers in America, and their posterity, were naturally inclined to love and venerate their fellow subjects in Europe, and to view their common government as the highest effort of human wisdom; but these conciliatory sentiments were stifled, by perpetually recurring acts of aggression on the part of those sent to govern the colonies.

“Courage, wisdom, integrity, and honour, are not to be measured by the sphere assigned them to act in, but by the trials they undergo, and the vouchers they furnish: and if so manifested, need neither robes or titles to set them off.”*

Upon these principles, no department of civil history demands from mankind such profound attention as the Anglo-American colonial. In these early establishments, the ancient Saxon free institutions were implanted, guarded, and flourished, whilst fading or expiring in Europe. It affords, to a well regulated mind, a cheerful retrospect to scan, the progress of new formed societies, amongst the members of whom the most exalted principles of ethics, jurisprudence, and legislation, were not alone preserved, but received a more solid sanction in the hearts of men from contrast, with their retrogradation in their pristine seats.

With such general views of our subject, we enter on a succinct survey of those English colonies which were planted previous to the date of the charter of Pennsylvania.

When America was first discovered by Europeans, the people of that part of the earth, and their rulers, seem to have, with one accord, considered the newly found regions the property of the first who could disembark on its shores. In a struggle for division of so rich a prize, Spain, Portugal, England, and France, were the most conspicuous competitors. Expeditions were sent out under the authority of each of these governments. Henry VII. then king of England, sent to America, in May 1497, John Cabot, who, with his son Sebastian, discovered, and coasted North America, from Newfoundland to the point of Florida. The Cabots were the first individuals recorded in history, who, under the authority of any European government, visited the south-east coasts of North America. There still, however, exists strong evidence, that, as simple fishermen, the Basques, or Bretons, from the north-west part of France, had visited the coasts of Green-

* Benjamin Franklin's Historical Review of the Constitution and Government of Pennsylvania, p. 5.

land and adjacent parts, before any discoveries were made of the same places, by national authority. During the long period which intervened, from the voyages of the Cabots to the actual colonization by both, the English and French nations seem to have preserved a nearly equal pace in the career of discovery.

An examination of the intermediate history of England will afford solid reasons why the government and people of that kingdom did not sooner avail themselves of their claims in North America. Under the Tudors, neither the population or resources of England, were adequate to distant colonization, or even commercial exertion; and to physical weakness were superadded political and religious contention.

The immense treasures in gold and silver procured from America, by the Spaniards, also tended to retard the northern nations of Europe from forming establishments on the opposing part of the newly discovered continent. Every nation considered America as a seat of mines, and when unable to procure the precious metals, disregarded every other advantage. Although slighted nationally, North America attracted the individual attention of many Englishmen, in the early part of the sixteenth century. In 1502, Hugh Elliott and Thomas Ashurst, merchants of Bristol, with some other associates, obtained letters patent from Henry VII, with the avowed intention of colonizing the newly discovered regions. The original of this patent in Latin, is preserved in Hazard's collections. It was the first English governmental grant respecting any part of America; but fell useless, no ostensive steps being ever taken to carry its provisions into effect.*

The French were more attentive to North America, than were the English at this early period; and the former, much sooner than the latter, perceived the true source of wealth offered, by the then, very imperfectly known wilds of the recently discovered continent. In 1504, the Breton and Norman fishermen, had a regular trade and establishments on Newfoundland, which at that time included the whole coast from Labrador to Florida.† The Bretons and Normans, how-

* The actual want of population at that time, in all Europe, but more particularly in the northern parts, opposed an insuperable barrier to colonization. In 1500, it is rendered probable, from concurrent circumstances, that the English crown did not include, under its subjection, three millions of people. Nautical skill and commercial enterprise were also still more contracted, than were the number of inhabitants. The discoverers of North America, under English authority, were Italians; no English seaman of that age appears to have been competent to the execution of such an enterprise.

† When the Cabots discovered North America, they gave to the parts they visited, the name of Newfoundland, which it retained until superseded by

ever, only visited the north-east parts, along the coast of the island of Newfoundland and vicinity.

John Denys, a native of Rouen, sailed, in 1506, from Honfleur to the Gulf of Newfoundland, and on his return to France, drew a map of that inland sea, its islands, and adjacent shores.

Denys was followed, in 1508, by Thomas Aubert, from Dieppe. The latter was the discoverer of the St. Lawrence river, and the country now called Lower Canada. On his return to Europe, Aubert carried with him some of the native savages.

The Baron of St. Lery, in 1524, made some abortive attempts at colonization in North America. The failure of St. Lery's design, and many other adverse causes, gave a check to French enterprise, and prevented actual colonization on the part of that nation in New France, for upwards of eighty years afterwards. Though without settlements by land, nevertheless the French fisheries flourished, and the knowledge of the country by that people, became annually more accurate.

The events of a voyage made by a Florentine, John Verrezzana, in the service of Francis I. king of France, are very imperfectly known. From the scanty records on the subject, it appears, that in 1524, Verrezzana reached the south-east coast of North America, and visited its shores from Florida to Nova Scotia. This discoverer was lost, and with him, in great part, the notes of his operations.

Though suspended in their efforts to either colonize or pursue their researches in America, the views of the French were constantly directed towards this continent. In 1534, Philip Chabot, admiral of France, represented so strongly to the king, the multiplied advantages which Spain was then deriving from her colonies, that James Cartier of St. Maloes, by royal commission, sailed from that port, April 20th, on a voyage of discovery, with two small ships and one hundred and twenty men. In his first voyage, Cartier sailed round the

that of Virginia, imposed by Queen Elizabeth in 1584. At a subsequent period to the discoveries of the Cabots, the Spaniards discovered the south-west sections of the same coast, and named it Florida. Newfoundland and Florida, therefore included all the coast of North America between the mouths of the Mississippi and St. Lawrence. The extremes on the Atlantic ocean, still retain their original appellations, whilst the intermediate space has been parcelled, and variously designated.

It is a real subject of regret, that either Virginia or Florida, had not prevailed, and been preserved over the whole Atlantic coast now in the United States. They are both fine sonorous names, and certainly preferable, as general terms, to the awkward expression United States. Either of the former would have been distinctive; the latter applies vaguely, to any combination of states into one general confederacy, and always demands circumlocution, to render its particular application definite.

island of Newfoundland, discovered and named the bay des Chaleurs, on the continent, and having afterwards reached N. Lat. 51°, on the Labrador coast, returned to Europe.

In his second voyage, 1535, Cartier penetrated the St. Lawrence as high as the island of Hochelaga, now Montreal, and having treacherously seized some of the natives, returned with them to France. Though disgraced by his conduct towards the savages of America, Cartier appears to have been the first individual from the north-west of Europe, who conceived an idea of the true wealth to be derived from the regions he had explored. He represented, in his report to the king, the great advantages which were offered by the fur trade alone; however, not having gold and silver mines in his list, no notice was taken of his representations.

Nearly forty years had elapsed, from the discoveries made by the Cabots, before any serious attempt was made by the English nation to avail itself of the claim. In 1536, a gentleman of London, at his own risk, though countenanced by the king, Henry VIII., undertook a voyage to America. This adventurer, by the name of Hore, was accompanied by one hundred and twenty persons, of whom twenty-five or thirty were men of education and character. Hore's expedition was, in a peculiar manner, unfortunate. After having visited Cape Breton and some other places in the gulf of St. Lawrence, the party were reduced to the utmost extremity of want and wretchedness; many were literally starved. Falling in with a French fishing vessel, they seized her, and took from her as much provision as enabled the survivors to return to Europe. The facts attending this voyage, it has been observed, prove, that the English were then utterly ignorant of the inexhaustible stores of fish to be found in those seas; and that upwards of thirty years after a regular fishery had been established by the French, that the English had not attempted a participation in that rich source of wealth and subsistence. From the sequel it will be seen, that strong reasons concur to support the conclusion, that the voyage of Hore contributed to turn the immediate attention of the English nation to the American seas. In 1548, the English fisheries had become an object of national legislation. In that year, an act of parliament was passed, to prohibit the exaction, from English fishermen and mariners, going in the service of the fishery at Newfoundland, of money, fish, or other reward, by any officer of the admiralty, under any pretext whatever. This was the first act of the English parliament relative to America.*

* Hakluyt, vol. I. p. 531—III. p. 131, 132. Chalmers, vol. I. p. 9. Holmes' Annals, vol. I. p. 94.

Cartier made his third voyage in 1541. Similar to that of England, the French government were inattentive to the value of the recently discovered territories in America; but many respectable individuals of both nations, renewed from time to time, projects of permanent colonization. The third voyage of Cartier was undertaken at the expense of Francis de la Roque, lord of Roberval, a gentleman of Picardy. Roberval was appointed by the king of France, captain-general, and viceroy of Canada, and its dependencies, with full powers. Cartier as deputy captain-general, was sent out by Roberval. The former, on August 23d, 1541, landed on Newfoundland, where he was, by appointment, to meet his principal. Roberval not arriving immediately, Cartier sailed alone to Canada, where he remained near two years, and built a temporary fort near where Quebec now stands. In the mean time, Roberval not arriving in America, Cartier sailed on his return to Europe. Meeting Roberval on the coast of Newfoundland, Cartier disregarded his orders, and continued his voyage. Roberval proceeded to Canada, where he spent the winter of 1542-3, and returned to Europe in the spring of 1543. Francis I. the patron of Roberval, died in 1547, and with him terminated, for upwards of fifty years, any attempt at settlement in North America by the French. Unaided by his government, Roberval, accompanied by his brother, left France, with an intention to proceed to Canada, and was never again heard of.

So many disasters, and the distracted condition of France, under the expiring house of Valois, prevented any effective attention of the nation to Canada, until 1598. In that year, the Marquis de la Roche received from Henry IV. a commission to conquer Canada, and other countries not possessed by any christian prince.

Twenty years before the date of the grant to de la Roche, Sir Humphrey Gilbert had received one of a similar import from Queen Elizabeth. In 1583, after repeated disappointments, Gilbert sailed to the island of Newfoundland, of which he took formal possession. On the 29th of August, his largest vessel, with all its crew, was lost near Cape Race; and on his voyage towards England, this excellent, but ill-fated adventurer was himself, and all his crew, lost on the 9th of September.

The grant to Gilbert was renewed in 1584, on May 25th, in favour of his maternal brother, Sir Walter Raleigh. The grant of 1584, expressly gave authority to Raleigh, to discover and conquer such heathenish and barbarous lands, as are not possessed by any christian prince or people. Under the

authority of Raleigh, Philip Amadas and Arthur Barlow, sailed from England, in order to explore that part of North America called, by the Spaniards, Florida. Passing through the West Indies, Amadas and Barlow having reached the American coast, and examined its bays and rivers, as far north as the mouth of Roanoke, returned to Europe in September 1584. The report of their discoveries was so seductive as to induce the queen to give the name of Virginia to the new acquisition to her dominions. Virginia continued for upwards of fifty years afterwards, to designate in the English maps, the whole coast from Florida to Labrador, and except the island which still bears that name, superseded the term Newfoundland, imposed by the Cabots.

Richard Grenville as general, and Ralph Lane as governor, were deputed, with seven ships, to proceed to Virginia, by Sir Walter Raleigh, in 1585. The object of this expedition was to plant a colony. The fleet left Plymouth, April 9th, and on the 25th of August reached the mouth of Roanoke, the point of destination. Governor Lane was left there with one hundred and ten persons, to commence settlement, and Grenville returned to England. This was the first attempt to form an actual establishment on the continent of America, made by the English nation; and failed, as in 1586, those of the colonists who had survived, were found by Sir Francis Drake, in so deplorable a situation, as to induce that commander, with the written request of Governor Lane, to re-convey them back to England. Some feeble exertions were subsequently made to restore the establishment, but were abortive. A few days after the departure of Sir Francis Drake, Grenville arrived, with three vessels, at Roanoke, but finding the place abandoned, left fifteen men to retain possession, and sailed to Europe. Early in 1587, Sir Walter Raleigh, anxious to preserve his colony, sent out three vessels and a company of one hundred and fifty people, incorporated under the title of "The county of Raleigh in Virginia," and with John White, constituted as governor. The legislative authority was vested in the governor and twelve assistants.

In one of his voyages, Sir Richard Grenville had discovered the mouth of Chesapeake bay, into which the colony of 1587 was directed to enter; but by some unexplained management of Fernando, their principal naval commander, these devoted people were landed on Roanoke island on the 22d of July. The new colonists found the bones of one man in one of the houses left by Lane's party; deer was found feeding, and melon vines clambering along the walls of the deserted buildings; but the fifteen men left by Grenville were gone

forever ! a melancholy presage of the fate of the present colony.

On the 27th of August, 1587, the governor sailed to England in quest of supplies, but of the wretched people left behind, no trace was ever since known. Thus closed the efforts of Sir Walter Raleigh, as to American colonization. No period in the sixteenth century, could have been more inauspicious to colonization than 1587. The nation was then in war with Spain ; without disciplined troops ; a navy scarcely deserving a name, when contrasted with the formidable fleet of its adversary ; and the Duke of Parma encamped at Dunkirk with an army of fifty thousand veterans. In such a posture of affairs, neither ships, seamen, and above all, experienced naval commanders, could be permitted to engage in any enterprise except national defence. Such men as Howard, earl of Effingham, the two Drakes, Hawkins, Frobisher, and Sir Walter Raleigh, were too precious at home, to have then engaged in any distant expedition. The danger was imminent and pressing, and though absolute conquest, it is probable, could not have crowned the invaders, if their fleets and armies could have reached the English shores ; yet such a shock must have produced lasting national deterioration. The Armada entered the English channel in May, where, battered by storms, and harassed by the light vessels and superior seamanship of the English, was finally defeated, and almost annihilated. When danger is past, nations, like individuals, retain the impression, and continue measures of precaution, and stand ready to oppose a recurrence. This feeling of apprehension fully accounts for the neglect of a far distant colony, eighteen years after the defeat of the Armada.

In France, the house of Valois expired in 1589, by the death of Henry III. who was assassinated at Orleans, and Henry de Bourbon, as Henry IV. succeeded to the throne. A long series of civil and religious tumult was gradually followed by peace and prosperity, in France. As the arts of agriculture and commerce revived, individual enterprise was roused, and Canada again assumed its share of national attention. The American fisheries, about the termination of the 16th century, had commenced to engage the avidity of all western Europe, and after an interval of more than forty years, a French fleet, in 1591, sailed from St. Maloes to Canada. The same year George Drake, an Englishman, sailed up the St. Lawrence, and on his return published an account of his voyage. Drake's representations, produced strong and immediate effects. Sylvester Wyatt, in 1594, found amongst vessels

of different other nations, above fifty English in St. Lawrence.

Under the grant from Henry IV. the Marquis de la Roche sailed from France to Canada, with a colony of convicts. Success corresponded with the moral material of his crews; the plan proved abortive, de la Roche regained his native country to die of a broken heart. M. de Chauvin followed de la Roche in 1600, and was the first individual who imported Canadian furs into France. Chauvin made a second voyage in 1601; and whilst preparing for a third in 1603, died suddenly in France.

The impression on the public mind in England, by the fatal issue of all attempts made under Raleigh's patent, and by the oppressive war with Spain, were imperceptibly effaced, and in 1602, Bartholomew Gosnold had the spirit to attempt, and the honour to produce, a revival of English adventure to America. In the summer of that year Gosnold, in a small vessel and about thirty men, reached the shores of what is now Massachusetts. This active naval officer left England, by consent of Sir Walter Raleigh and his associates, and attempted a colony on Elizabeth islands. The stores and men were landed, but their obvious weakness created discontent and fear; the enterprise was relinquished, and the little colony reembarked. This was the first attempt made by any European nation to obtain settlement in what is now designated New England.

American colonization, at this period, was supported by the able pen of Richard Hackluyt, who entered, with zeal and sound judgment, into the investigation of plans of discovery and settlement. By the active influence of this gentleman and others, and permission of Sir Walter Raleigh, the mayor and aldermen, and some wealthy merchants of Bristol, fitted out a small vessel of fifty tons, the *Speedwell*, and a bark of twenty-six tons, called the *Discoverer*, both commanded by Martin Pring. The object of this voyage was to more effectually than had been hitherto done, discover and examine the northern shores of Virginia.* Pring sailed from Milford Haven, April 10th, 1603, and reached the American coast amongst the islands of Penobscot bay. After ranging the shores to Massachusetts bay, Pring returned to Europe in August.

At the same period in which Pring was employed on the northern section of Virginia, Bartholomew Gilbert visited the

* Now New England. It has been shewn, that in the early periods of English colonization in North America, the name of Virginia was extended indefinitely. See p. 42.

more central parts, in search of the lost colony of Sir Walter Raleigh. Gilbert made the coast between Hudson and Delaware bays, about N. Lat. 40, and rashly going on shore with four of his principal men, were all destroyed by the savages. The fate of their leaders intimidated the surviving crew, who immediately set sail for Europe, without having, in any manner, fulfilled the objects of their voyage.

November 3d, 1603, an event occurred, which places in a strong light, the vagueness of English and French claims in North America. Henry IV. granted to Pierre du Gast sieur du Monts, a patent for that American territory extending from N. Lat. 40° to 46°, with a commission of Lieutenant General of that portion of country; and with power to conquer, colonize, and rule it, and to christianize the natives. The king of France soon after, granted to this officer and his associates, a monopoly of the fur and peltry trade, in the province of Acadia and Gulf of St. Lawrence. In the same year of Du Monts' patent, Samuel Champlain, a native of Brouage in France, sailed up the St. Lawrence river, and made many extensive and important discoveries.

The fisheries around Newfoundland had already become highly valuable; more than two hundred sail of vessels, and above ten thousand men were engaged in that business.

The Sieur du Monts, with Champlain as his pilot, and attended by M. Poutrincourt and a number of other volunteer adventurers of respectability, embarked in two vessels for America. He made first the coast of Nova Scotia, then Acadia, and anchored in Port Rosignol, now Liverpool. Coasting round Cape Sable, the immense bay of Fundy was explored. Poutrincourt fixed his residence at N. Lat. 44° 30', where he, on a fine bay, established a village, to which he gave the name of Port Royal. This place is now the town of Anapolis, and was the first French settlement in North America.

By the joint exertions of Du Monts and Champlain, the rivers, bays, and inlets of both sides of the bay of Fundy, and part of Maine, were discovered during this voyage. Du Monts wintered 1604-5, at the mouth of the Schoodick, now St. Croix, on a small island, at present the north-east limit of the United States, on the Atlantic coast.*

In 1605, the seat of the French colonial government, if it then deserved the title, was fixed at Port Royal. This was two years before the establishment of the English colony at Jamestown, and four before the French settlement at Quebec.

* When the United States and British commissioners settled that part of the boundary, in 1798, the ruins of Du Monts' fort was discovered.

The two nations were each, however, emulous of discovery and colonization. The Earl of Southampton and Lord Arundel, in 1605, fitted out a small vessel to attempt a south-west passage, and gave the command to George Weymouth, who appears, from his operations, to have had, even for that period, a very inaccurate knowledge of the North American coast. He made land in about N. Lat. $41^{\circ} 30'$, and coasting thence north, discovered the mouth of a large river, supposed to be the Penobscot, up which he sailed for some distance, and in July set sail on his return to England.

One hundred and nine years had now elapsed since the discoveries first made on the south-east coast of North America, by the Cabots. Though England and France, in the interim, occasionally prosecuted voyages of discovery; and though both nations, in the beginning of the 17th century, pursued their fisheries with activity, neither, if we except the trifling French fort at Port Royal, had a single fortress or factory on shore. We have seen that as early as 1577, that the fisheries employed 150 French vessels, 100 from Spain, 50 from England, and 50 from Portugal. According to Joseph Childs, the Newfoundland fisheries, as those on the North American coast were designated, then employed 10,000 seamen.* The English nation, destined ultimately to become the ruling power, in that part of the North American seas, islands, and continent, now the United States and Canada, were, during the 17th and the early part of the 18th century, much less active than its rivals, particularly France. At, and for a century before the epoch of actual colonization, English enterprise was in great part exhausted in abortive attempts to find a north-west passage to China and India. The rage for discovering mines of the precious metals, was then also at its height. Rational projects of colonization, founded on a commercial and agricultural basis, had not been then conceived by any nation of Europe, much less by England.

Local, domestic, and political causes were, however, most efficacious in preventing England and France from emulating Spanish and Portuguese enterprise in America. In England, the long vigorous, successful, and politic administration of Elizabeth, was, with all its beneficial effects, inadequate to heal all the wounds inflicted by a century of anarchy, civil war, or misgovernment which preceded her reign. The resources of France, and the chivalrous gallantry of its people, were employed, during almost the whole of the century, in either wars of ambition, national defence, or civil tumult.

* See page 45.

Henry IV. as late as 1600, had merely succeeded in securing his crown by force of arms, and had yet obtained little leisure to cultivate the arts of peace.

In both nations, finances, able seamen, and commercial knowledge were wanting; and to these moral, were superadded physical impediments to foreign colonization, arising from deficiency of population. Though thus retarded, nevertheless, the germ of national force existed, and the spirit to give that force effect, was annually gaining intelligence by means of the press, and preparing for that long and embittered rivalry in America, which gave ascendancy to English over French power on this continent.

SECTION III.

STATISTICS.

THIS department of the Repository, agreeable to the original plan, shall be appropriated to that branch of statistics most immediately connected with geography. The articles also of Section III. in the two first volumes, will be generally such as arise from and tend to illustrate the subjects of the Geographical and Historical departments.

Probably, for a protracted future period, a water communication through our mountains, will form a vital question of internal politics. The solution of this gigantic problem, like that of a north-west passage to China and India, may call into action the most enthusiastic feelings, and excite the highest exertions of individual talent. It has been said, with metaphysical correctness, that "no unproductive exertion can be made." Such has been thus far the result of speculation on canal navigation from the Atlantic rivers to the illimitable regions of the west. Calculations on practicability decried before experiment, as extravagant, have eventuated in joining Lake Erie to Hudson river. With all, however, already executed, national enterprise seems to be only awakened to the importance of the object. The people of the United States, as a nation, in assuming a high rank amongst the families of mankind, are also awarding a part of their resources, mental and physical, to the creation of new means of internal association.

In such a political course, pre-eminence is not attained and preserved by the mere possession of independence, but rests on the basis of intellectual and physical improvement; upon

the conception and execution of designs unprecedented for magnitude and utility. The canals of New-York, colossal as they are as examples of human labour, are only fine as specimens of what remains to be performed by consolidated national force. That man deserves the grateful meed of a public benefactor, who enlists his talents and fortune in tracing the incipient plans necessary to the development of such structures.

Amongst the plans of internal improvement agitated in our general councils at the last session of Congress, 1823-4, one was a projected canal and lock union of the Atlantic waters with those of Lake Erie, by the route of Potomac, Monongahela, Ohio, Big Beaver, and either the Cayahoga or Grand river.* In the execution of this line of artificial navigation, the whole United States is deeply concerned, but more especially so, Virginia, Maryland, Pennsylvania, and Ohio. Mr. James Schriver of Uniontown, Fayette county, Pennsylvania, deserves much credit for his services in the early development of the geographical features of the country intended to be traversed. This gentleman, early in 1824, published in Baltimore, a pamphlet under the following title :

“Account of Surveys and Examinations, with remarks and documents relative to the projected Chesapeake and Ohio, and Ohio and Lake Erie canals.”

* The last session of Congress, appropriated one hundred and sixty-three thousand dollars, for internal improvement, almost the whole of which is to be expended in experiments—such as surveys, examination for routes of canals, &c. We subjoin a list of the acts of appropriation with the respective amounts annexed.

An act authorising the President to cause surveys and estimates to be made for such routes for Roads and Canals, as he may deem of importance in a commercial or military point of view, or for the transportation of the United States' mail.—The sum appropriated, \$30,000.

An act for making experiments with a view to the improvement of the navigation of the rivers Ohio and Mississippi.—The sum appropriated, \$75,000.

An act to make a road in the Michigan territory, from Detroit to the Ohio state line.—Length of the road seventy miles.—Sum appropriated, \$20,000.

An act to make a road in the Territory of Arkansas, from Memphis, in Tennessee, to Little Rock—distance one hundred and sixty miles.—Sum appropriated, \$15,000.

An act to make a road in the territory of Florida, from Pensacola to St. Augustine—distance three hundred and sixty-five miles.—Sum appropriated, \$20,000.

The same act authorises the survey of routes for roads, from Cape Sable to the Suwaney river, and from Cape Florida to St. Augustine.—Sum appropriated, \$3,000.

These acts were all reported by the committee, of which our worthy representative, Mr. Hemphill, is chairman; and it will be found upon an examination of these acts, that scarcely a more judicious distribution of these funds could have been adopted.—*U. S. Gazette, July 26, 1824.*

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This publication would deserve serious notice, if it contained nothing of value beyond its motto, which in few but clear and energetic words, thus depicts the reciprocal interests of the east and west sections of the United States :

“For my own part, I wish sincerely, that every door to that country, (the west,) be set wide open, that the commercial intercourse with it, may be rendered as free and easy as possible. This, in my judgment, is the best, if not the only cement, that can bind those people to us for any length of time—and we shall, I think, be deficient in foresight, if we neglect the means of effecting it.”—WASHINGTON.

In addition to this text, upon which volumes might be written, Mr. Schriver's pamphlet contains a mass of judicious observation and instructive document, which are calculated to give ample reward to the statistical inquirer.

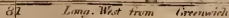
The number is few, who have duly weighed the entire importance of this subject ; the following estimate, will serve to exhibit the comparative extent of that country of the west, the moral weight of which is in a state of rapid development. The whole land surface of the earth is, in round numbers :

Asia, - - - - -	10,000,000
Europe, - - - - -	3,000,000
Austral Asia and Polynesia, - -	4,000,000
Africa and contiguous islands, - -	8,000,000
North America and contiguous islands,	9,000,000
South America and contiguous islands,	6,000,000
	40,000,000

Considered as capable of sustaining dense and cultivated population, at least fifteen millions of square miles may be deducted for unproductive tracts, leaving twenty-five millions for that part of the earth on which highly civilized society can exist.

The already organized states and territories of the United States, extend over one million one hundred and thirteen thousand square miles. Of this expanse, at least one million is capable of giving support to a very compact general population. This reduced area is, we see, equal to one-twenty-fifth part of the civilized habitable earth. In this estimate is excluded all the widely extended wastes of the west towards the sources of Missouri and Columbia rivers, and Pacific ocean.

4	Longitude West from Washington
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At the census of 1820, the actually organized states and territories stood thus relatively :

	Square Miles.	Inhabitants.
Alabama, - - - -	51,770	143,000
Arkansaw, Territory of, -	100,000	14,273
Connecticut, - - -	4,750	275,248
Columbia, District of, -	100	33,039
Delaware, - - - -	2,120	72,749
Florida, Territory of, - -	54,000	10,000
Georgia, - - - -	58,000	340,749
Illinois, - - - -	58,900	55,211
Indiana, - - - -	34,000	147,178
Kentucky, - - - -	37,680	564,317
Louisiana, - - - -	48,220	153,407
Maine, - - - -	35,000	297,839
Maryland, - - - -	11,000	407,350
Massachusetts, - - - -	7,250	521,725
Michigan, with N. W. Territory, -	174,000	10,000
Mississippi, - - - -	45,760	75,448
Missouri, - - - -	62,870	66,586
New-Hampshire, - - -	8,030	244,155
New-Jersey, - - - -	6,857	277,575
New-York, - - - -	46,000	1,372,812
North Carolina, - - -	48,000	638,829
Ohio, - - - -	38,260	581,434
Pennsylvania, - - - -	47,000	1,049,458
Rhode Island, - - - -	1,580	83,059
South Carolina, - - -	24,000	502,758
Tennessee, - - - -	40,000	422,813
Vermont, - - - -	8,278	235,764
Virginia, - - - -	63,000	1,065,304
Total,	1,116,419	9,662,010

Turning our eye to a map of the United States, we behold the foregoing area, naturally subdivided into two great sections, separated by a wide system of mountains. Taken in its utmost extent, the Atlantic slope only spreads over two hundred and sixty thousand square miles, leaving in the connected interior basins of St. Lawrence and Mississippi, or rather that of the Gulf of Mexico, the prodigious extent of seven hundred and forty thousand square miles. The interior section, therefore, exceeds that along the Atlantic ocean as three to one nearly. If we advert to the immense excluded tracts, towards the Pacific, the comparative estimate we have made is very much too favourable to the Atlantic slope.

In the distribution of population, at the period of the last census, we have some most striking document. The Atlantic states, east of Pennsylvania, inclusive, contained 4,367,480 inhabitants. Western states, including those from the Canadian lakes to the Gulf of Mexico, and west of the Appalachian mountains, had, at the same period, 2,233,767. The states along the Atlantic ocean was peopled by the residue, 3,062,066.

The elements of the respective masses present very interesting subjects of reflection to the philosopher and politician. Of the great mass of 6,601,247, found in the north-eastern states from Pennsylvania inclusive, and those of the west and south-west, only 370,000 were slaves; whilst of 2,233,767 inhabitants in the south-western Atlantic states, more than 1,160,000 were slaves.

The practical application of such data, may enable existing statesmen to avail themselves of present advantage, and prevent future evil. It is within the scope of the recollection of the middle aged part of the existing generation, when the basin of the Mississippi was, with very partial exceptions, an howling waste; in 1820, more than two millions, and now, (1824,) no doubt, above two millions five hundred thousand people inhabit this immense surface. In great part composed of free whites, and by the canals of New-York connected by water communication with the north-eastern Atlantic states, a flood of congenerous population will pour south-west. It is not, however, the present, but the future locality of population with which we are concerned in this inquiry. I have shewn, that if only the area included in the organized states and territories is taken into the estimate, more than two-thirds of the productive soil of the United States is in the basin of the Gulf of Mexico. When in the state of Ohio, in the early part of this year, I ascertained, that the existing population exceeds seven hundred thousand, or above eighteen to the square mile. A general population equal to Ohio, over 740,000 square miles, would yield an aggregate of thirteen millions three hundred and twenty thousand. Hamilton county of Ohio, in 1820, contained seventy-nine to the square mile; such density of population on 740,000 square miles, would present a grand total of upwards of sixty millions.

Let no man dare trifle with experience. In 1790, the entire civilized inhabitants on that part of the United States on the basins of the Canadian sea and Gulf of Mexico amounted to about 100,000; in the subsequent ten years, they increased to upwards of 500,000; and in 1810, exceeded one million. From 1810 to 1820, this rapidly accumulating mass more than doubled. It is perfectly safe to assume fifteen

years as a period within which the inhabitants of the region we have been reviewing, will increase two-fold. Allowing two and a half million for the present, such ratio of accumulation would give, in 1870, twenty millions, or but little above twenty-seven to the square mile. We may therefore, without danger of presumption, assert, that before another half century has elapsed, an immense preponderance of population will be in the west. The mind swells with a momentous futurity. The rapidity of change deceives the senses, mocks the legislator, and outruns the geographer. States, cities, towns, and farms, rise before the astonished traveller. The moment is at hand when political power must follow physical force. A revolution in our domestic relations is gradually withdrawing the centre of wealth and moral force towards an interior region, where society must possess more attributes of cohesion than in any other region of equal extent on earth.

It is only necessary to turn our eye to a map of the United States, to trace the walls which enclose the population of the basin of the Mississippi and contiguous places, and confine them to two points of commercial egress. Nature provided the overwhelming volume of the Mississippi, and the genius of one man has added another by artificial means. Unless other channels are opened, New-York and New-Orleans must be the emporia of the almost interminable regions of interior North America. In the formation of a great central line of canal improvement, when its moral, political, and fiscal benefits are taken into the estimate, difficulties ought to stimulate to action, and expense disregarded. Nations rush to wars of ambition, without calculating consequences; but when the most invaluable public works are proposed, every trivial expenditure is scrupulously examined.

Politicians are too seldom statesmen, and even national legislation founded too much on the affairs of the moment, without prospective view. The whole nation is now at an enormous expense to build legislative halls and palaces for the officers of government; edifices which the slightest foresight, the most cursory survey of territory, must convince every unprejudiced mind, are doomed, at no very distant day, to remain untenanted, if the present order of things continue to operate. Despotism carried the court of Russia from Moscow to the swamps of the Neva, and despotism continues it there; but in the United States, the people have retained in their own hands the despotism of legislation, and the choice of the spot where the national councils are to be held; and consequently the seat of general legislation must approach that of population. This is not an idle indulgence of hypothesis, it is induc-

tion from the previous facts of our history, and from the very nature of the human mind.

We have before us a territory exceeding two-thirds of the entire national domain, and a territory which, in less than forty years, has gained from about twenty thousand to one and a half million of inhabitants. It may startle any mind undisciplined to reflection on the subject, to be told, that in less than another forty years, at least fifteen millions of inhabitants will exist on the great central valley of the United States; and that before the termination of this century, this region will contain an immense majority of the people of the United States.

The fearful anticipation does not rest here. It is not alone the residents in the expansive basin of the Mississippi which will be bound together by the silken cords of mutual interest and affection. If we turn to that artificial river which has already almost received its aliment from Lake Erie, we at once behold the adamant link, which unites the north-east to the south-west sections of our country. De Witt Clinton has received, and will continue to receive the meed of the highest admiration, and the most embittered calumny, for the execution of this work; a work which can only perish with the world, of which it forms one of the finest features; and a work which insures the immortal fame of its illustrious projector. When the rubbish and scaffolding of the human character have alike crumbled to dust, and when the foul passions of his own age have been buried in the grave of the existing generation, then will the name of De Witt Clinton stand in history, stable as the mountains of his own native state, mocking the ravages of time.

Much, however, as have been said and written on the great Western Canal of New-York, the most important effect it can produce, has been generally overlooked. The deteriorating effects of slavery in the southern states have been hitherto considerably counteracted by a constant emigration from the north-eastern states. The moment the canal into Lake Erie is completed, the tide of emigration must change its course, and rush upon western Pennsylvania, Ohio, Michigan, Indiana, Illinois, and Missouri.

To remove the impediments imposed to intercourse between sections of so much reciprocal consequence, is a labour truly national. The fortune of that statesman is enviable, whose name will be associated with the completion of canal navigation, more than two thousand five hundred feet above the ocean tides. To expatiate on the grandeur of such designs

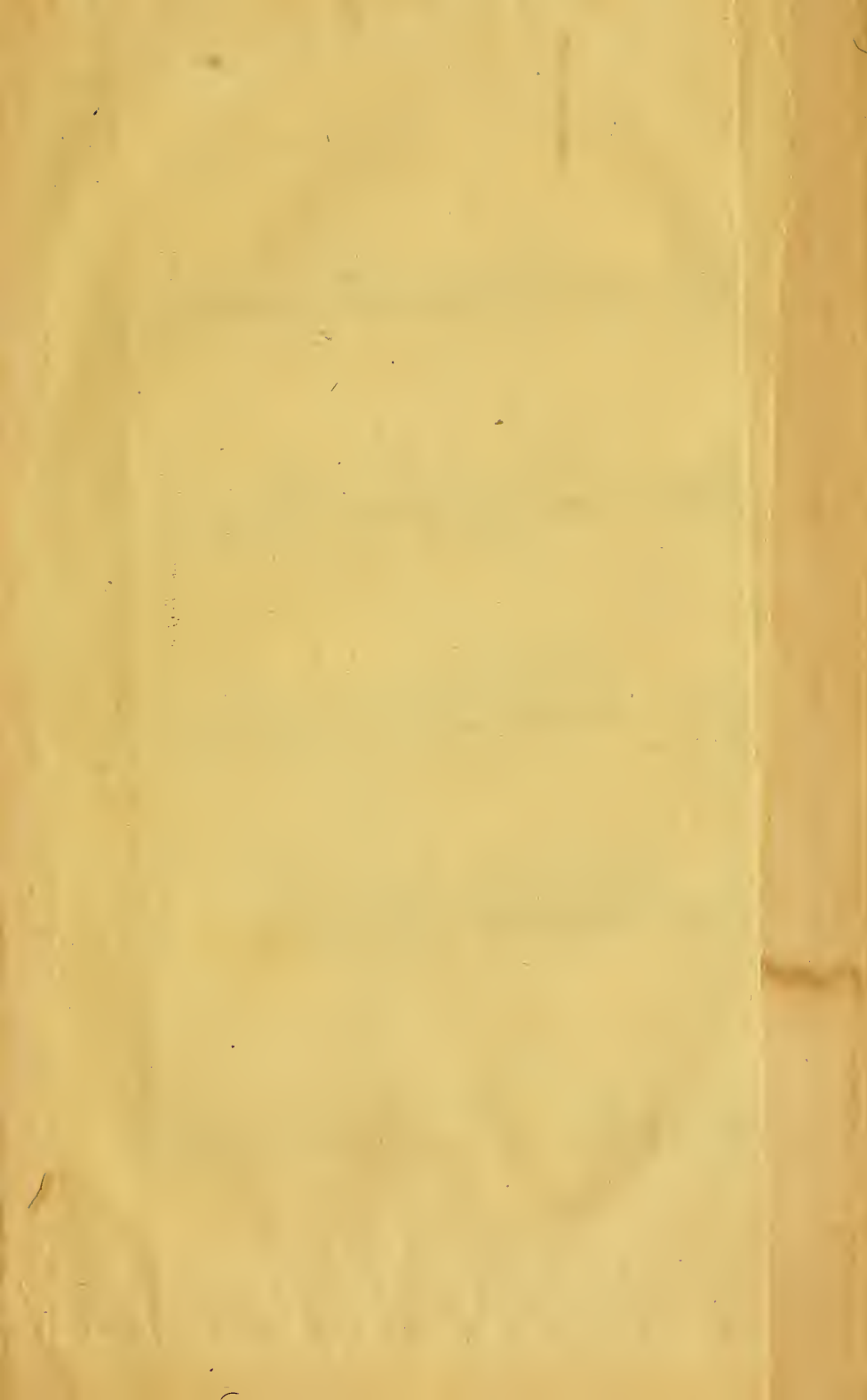
is to lessen the effect, and to dilate on their utility is to insult the understanding of the reader.

The unprecedented increase of the human species in the United States, has been considered as the most interesting fact in modern history; but is not the peculiar moral means, and the unequalled local advantages of this increasing body, a still more important subject of reflection? Does not the spectacle of social happiness transcend mere numerical mass? Reply to such queries is spontaneous. In all the vigour of youth, and with the recorded wisdom of ages, the United States smile at labours beyond the strength of nations in political decrepitude.

By reference to the appended profile maps and tables, it will be seen, that the great spine of the Appalachian system, or rather the dividing line of the rivers of the Atlantic slope and those of the Mississippi basin, rises by a very gradual ascent from the Mexican Gulf to the source of Tennessee, Great Kenhawa, Roanoke, and James river. Here appears to be the highest table land in the United States, between the Atlantic slope and the basins of St. Lawrence and Mississippi. From this elevated tract, the dividing ridge maintains a nearly equal height from North Carolina, over Virginia and Maryland, into Pennsylvania. The summit level in Maryland, between the sources of Potomac and Youghiogany rivers, lies 2486 feet above the Atlantic tides. Advancing north-east from the latter level, the mountain system imperceptibly depresses, crossing Pennsylvania, and in New-York between the sources of Tioga branch of Susquehanna and Seneca lake, has sunk to 885 feet above tide water. The Newtown and Seneca level, though thus depressed, nevertheless lies 465 feet above that of the New-York canal near Rome; the latter being only 420 feet above tide water in Hudson river.

It remains an undetermined problem, whether the sources of the West Branch of Susquehanna admits of any pass to the branches of Allegany river, more depressed than that between Tioga river and Seneca lake. From any data yet procured, the pass from Newtown to the head of Seneca lake is the lowest summit level from Rome, in New-York, to the western part of Georgia.

Rising therefore on the intermediate table land, the sources of the Chesapeake rivers flow from those of the Mississippi and St. Lawrence basins, at various heights, from eight hundred and sixty-five to two thousand five hundred feet. In this sketch, the extreme elevations of the mountains are not taken into view, regard being solely paid to those influential on the formation of canal navigation. It is remarkable, that advanc-



N^o 5

L. Erie Level

Buffalo

Bladrock

Albany

Profile Map of the Grand Canal of N.York from Albany to Bu

N^o 4

Erie Level

Lockport

Montezuma

Orleans

Philad^a

Profile Map from Philad^a to Lake Erie by the route of the Unio

N^o 3

Lake Erie

Summit Level

Warren

Mouth of Big Beaver R.

Pittsburg

Tide Water at Georgetown

Profile view of levels from Potomac R. at Georgetown to Lake

N^o 2

Ohio Level

Mth. of Great Kenhawa

Richmond

Profile Map from Richmond Virg. to the mouth of Great Kenhawa

N^o 1

Ohio Level

Mth. of Great Kenhawa

Great Falls

Bowyers Ferry

Richmond

Profile Map from Richmond Virg. to the mouth of Great K

ing south-west from Rome, in New-York, that nature appears to oppose increasing difficulties to the execution of canal improvement, by the gradual rise of the dividing ridge.

The following tables and annexed profile maps have been constructed to illustrate the subjects treated of in the third section of this number.

No. 1.

Table of the ascents and descents from tide water in James river to the mouth of Great Kenhawa, by the route of Jamestown, Craig's creek, Sinking creek, and Great Kenhawa. Profile map No. 1. was constructed from this table.

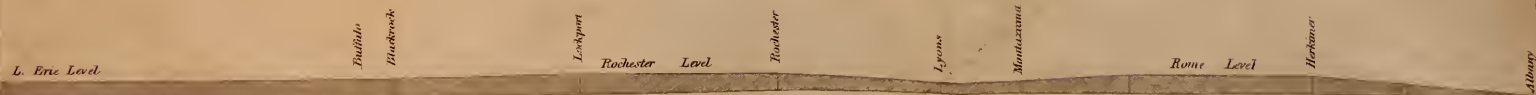
	Miles.			Feet.	
Richmond up James river to mouth of Craig's creek,		200	Rises		925
Up Craig's creek to mouth of John's creek,	49	249	do.	345	1270
Highest spring tributary to Craig's creek,	$8\frac{1}{2}$	$257\frac{1}{2}$	do.	228	2498
Lowest point on dividing ridge,	$0\frac{1}{4}$		do.	53	2551
Highest spring tributary to Sinking creek,	$0\frac{1}{4}$	258	Falls	42	2509
Mouth of Sinking creek,	34	292	do.	924	1585
Down Great Kenhawa to mouth of Greenbriar river,	55	347	do.	392	1333
Bowyer's Ferry,	46	393	do.	403	930
Kenhawa at the foot of the Great Falls,	21	414	do.	341	589
Ohio river at the mouth of Great Kenhawa,	94	508	do.	108	481

No. 2.

Table of the ascents and descents from tide water in James river to mouth of Great Kenhawa, by the route of James, Jackson's, Greenbriar, and Great Kenhawa rivers. Profile map No. 2. was constructed from this table.

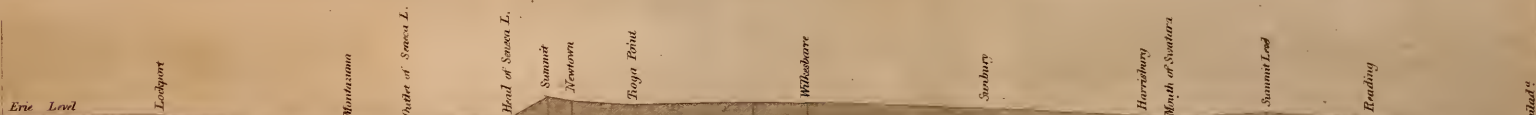
	Miles.			Feet.	
Richmond up James river to mouth of Craig's creek,		200	Rises	3	925
Mouth of Dunlap's creek, above that of Jackson's river,	25	225	do.	313	1238
Lowest point on dividing ridge,	16	241	do.	1240	2478
Mouth of Howard's creek into Greenbriar river, near Lewisburg in Greenbriar county,	12	253	Falls	838	1640
Mouth of Greenbriar river,	50	303	do.	713	1333
Bowyer's Ferry,	46	349	do.	403	930
Foot of Great Falls,	20	369	do.	341	589
Mouth of Great Kenhawa,	94	463	do.	108	481

N^o 5



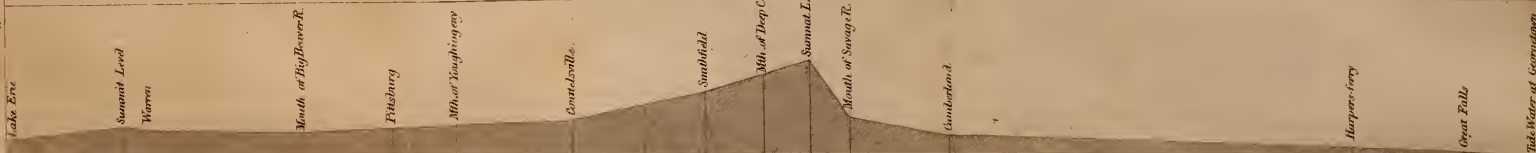
Profile Map of the Grand Canal of N.York from Albany to Buffalo.

N^o 4



Profile Map from Philad.^a to Lake Erie by the route of the Union Canal, Susquehanna R., Seneca L., and Grand Canal of N.York.

N^o 3



Profile view of levels from Potomac R. at Georgetown to Lake Erie at Cleveland by the route of Potomac, Youghiogey, Monongahela, Ohio, Big Beaver, and Cuyahoga Rivers.

N^o 2



Profile Map from Richmond Virg. to the mouth of Great Kenhawa by the route of James R. Greenbrier, and Great Kenhawa Rivers.

N^o 1



Profile Map from Richmond Virg. to the mouth of Great Kenhawa by the route of James R. Greenbrier, Sinking Cr., and Great Kenhawa.

No. 3.

Table of the ascents and descents from tide water in Potomac river at Georgetown, to Lake Erie at the town of Cleveland, by route of Potomac, Youghiogany, Monongahela, Ohio, Big Beaver, and Cayahoga rivers. Profile No. 3. was constructed from this table.

	Miles.			Feet.	
Georgetown to Great Falls,		12	Rises		143
Harper's Ferry,	40	52	do.	39	182
Shenandoah Falls,	5 $\frac{1}{2}$	57 $\frac{1}{2}$	do.	43	225
Cumberland,	130 $\frac{1}{2}$	188	do.	312	537
Mouth of Savage creek,	31	219	do.	446	983
Summit level,	14	233	do.	1503	2486
Mouth of Deep creek, a branch of Youghiogany river,	16	249	Falls	342	2144
Down Youghiogany river to Smithfield, on U. S. road,	22 $\frac{1}{2}$	271 $\frac{1}{2}$	do.	739	1405
Connellsville,	37 $\frac{1}{2}$	309	do.	507	898
Mouth of Youghiogany,	40	349	do.	87	811
Pittsburg,	18	367	do.	11	800
Mouth of Big Beaver river,	30	397	do.	106	694
Up the latter to foot of Falls,	1 $\frac{1}{2}$	398 $\frac{1}{2}$	Rises	12	706
Head of Falls,	2 $\frac{1}{2}$	401	do.	44	750
Warren,	50	451	do.	104	854
Summit level between the sources of Big Beaver and Cayahoga rivers,	10	461	do.	53	907
Level of Lake Erie at the mouth of Cayahoga river at Cleve- land,	60	521	Falls	342	565

No. 4.

Table of ascents and descents from the level of tide water in Delaware river, to the level of Lake Erie at Buffaloe, by the route of the Schuylkill, Union Canal, Susquehanna, and Chemung or Tioga river, Newtown creek, Seneca lake and outlet, and the Grand Canal of New-York, from Montezuma to Buffaloe.

	Miles.			Feet.	
Philadelphia to Reading,		55	Rises		186
Summit level between Tulpe- hocken and Swatara,	34	89	do.	310	496
Susquehanna at the mouth of Swatara,	34	123	Falls	220	276
Harrisburg,	13	135	Rises	10	286
Sunbury,	50	185	do.	200	486

No. 4. (Continued.)

	Miles.			Feet.	
<i>Brought over,</i>		185			486
Wilkes Barré,	60	245	Rises	100	586
Tioga Point,	60	305	do.	189	775
Newtown,	20	325	do.	51	826
Summit level, between the Tioga river at Newtown and Seneca Lake,	7	332	do.	59	885
Head of Seneca Lake,	13	345	Falls	445	440
Outlet of Seneca Lake,	35	380	do.		440
Montezuma on the Great Canal,	20	400	do.	69	371
Commencement of Rochester level,	63	463	Rises	126	497
Along do. to the locks at Lockport, - - - -	65	528	do.	68	565
Here commences the Erie Level, which extends into that lake.	31	559			

No. 5.

Table of ascents and descents from tide water in the Hudson river at the city of Albany, to the level of Lake Erie, by the route of the Great Western Canal of New-York.

	Miles.			Feet.	
Albany to Schoharie creek,		42	Rises		286
Rome level at Herkimer,	28	70	do.	132	418
Along that level,	65	135			
Montezuma,	38	173	Falls	45	373
Lyons,	24	197	Rises	61	434
Rochester level,	58	255	do.	65	499
Along that level,	66	321			
Lake Erie level at Lockport,				66	565
Along that level to Black Rock and into Lake Erie,	31	559			

—♦—

 MISCELLANEOUS.

The twenty miles of canal, extending from the vicinity of Reading towards Philadelphia, were opened for use on the 5th of July last. The ceremony of commencing the first complete canal navigation in Pennsylvania, was conducted with all due solemnity, by a deputation from the board of managers of the

Navigation Company; accompanied by a numerous party of citizens from Reading and neighbouring places, a committee from the Union Canal Company, and several members of the city councils of Philadelphia. About 7 o'clock A.M. three barges, the *Thomas Oakes*, the *Stephen Girard*, and the *De Witt Clinton*, left the town of Reading having on board near three hundred persons, and proceeded through the pond formed by the dam at Lewis' Falls, to the entrance of the canal. Horses were there immediately attached with towing lines to the boats, and for the first time within the state of Pennsylvania, complete canal navigation was exhibited.

This auspicious event excited a strong feeling of pleasure in the adjacent country, thousands flocked to enjoy a sight a few years past they little expected ever to witness.—*U. S. Gazette*, July 8th, 1824.

This is in every respect the age of bold design, and not unfrequently successful experiment. The project of a tunnel, or arched carriage way under the Thames, at London, has been seriously agitated, and except its novelty we see nothing extravagant in the plan. If both were alike novel, a bridge over the water would in most cases be considered a much more difficult undertaking, than a tunnel underneath. To their ignorance, or neglect of the fact, that water would rise to its own level, the ancients stood indebted for their aqueducts; may not bridges in numerous instances owe their existence to a far less excusable ignorance amongst the moderns?

Subaquatic tunnels would oppose no obstacle to navigation, nor be liable to interruption by frost; and if well constructed in the first instance, much less exposed to injury than bridges.

Staffordshire—Grand Trunk, or Trent and Mersey Canal.

The additional tunnel through Harecastle Hill, was commenced last month. It is calculated to occupy the labour of five years, during which several hundred men must be employed. The expense has been estimated at a guinea an inch, (forward). The distance being about one mile and three quarters, or 2880 yards, which alone will make 103,680 guineas. The total expense has been calculated at a quarter of a million sterling. Shafts will be sunk and steam engines erected for raising the earth, &c. at different points of elevation—the tunnel averaging about seventy yards in depth from the surface of the hill. The Grand Trunk Canal was begun in 1767, and finished in 1777, and such is the richness of the

company, and the business of the canal, that the cost is no object compared to the advantages to be gained.—*London New Monthly Magazine for June, 1824.*

The above Canal is about 100 miles in length, and overcomes a fall of 642 feet by 75 locks, and has already one tunnel through Harecastle Hill 2888 yards in length, 9 feet wide and 12 feet high, another at Preston-on-the-hill of 1241 yards, at Barton of 572 yards, at Saltersford another of 350 yards, and at Hermitage of 130 yards. It has several reservoirs to feed the summit covering together about 220 acres, and there are a number of railways and branch cuts connecting the canal with mines and quarries. The boats used are 80 feet long and 6 feet wide, and the locks 7 feet wide. The rates of tonnage are a penny-half-penny per ton per mile, and the articles carried upon it are coals, salt, pottery wares, lime, gypsum, slates, and agricultural products. *The Shares* originally 100*l.* each, sold as high as 2280*l.* each in May 1824.

Perhaps no two experiments ever made have been successful against more obstacles, or productive of more beneficial results than those of steam boats, and the canals of New-York. The following extracts exhibit a few of the practical effects.

In the latter days of July past, several gentlemen arrived in New-York, from New-Orleans, Mobile and Blakely, by way of Pittsburg, and Lake Erie. Those from Louisiana ascended the Mississippi, and those from Alabama travelled by land to Nashville in Tennessee; thence proceeded by the Cumberland and Ohio rivers to Pittsburg in steam boats. From the latter place they passed in stages to Detroit, where they embarked in the elegant steam boat Superior, Captain Bunker, for Buffaloe; thence by Erie canal to Albany, and down the Hudson to New-York.

These travellers state the very interesting fact, that one third of the passengers in the steam boat Superior, were from the Gulf of Mexico, preferring this route, from the south to the north, as being the cheapest, the most comfortable, and by far the most pleasant. It must indeed be a most delightful tour in the warm season, affording an opportunity of viewing some of the finest and most variegated scenery in the United States, comprising the rivers Mississippi, Ohio, and the Hudson, Lake Erie, the falls of Niagara, and the Great Western Canal, the most stupendous work of modern times.

It is probable that this route will be, after the Great Western Canal is completed, chosen as part of the fashionable tour from the south.—*National Gazette, August 2d, 1824.*

Mr. F. A. Stewart, commission merchant, No. 88, Coffee House Slip, New-York, received, August 7th, 1824, bills of lading, and a note of consignment, of a cargo of Onondago salt and kelp, to be shipped on board the ship Ontario, *calculated for canal and river navigation*. She is schooner rigged, and clears from the port of Syracuse,* for New-York, and thence to Hartford, Connecticut. Her cargo consists of the common fine salt of Salina, manufactured by the Syracuse company, by the process of solar evaporation; and of coarse salt, made at Boynton rocks, by a low degree of heat. The kelp is also a valuable article for our market.—*National Gazette, August 11th, 1824.*

The tolls on the New-York Western Canal received this year, from the opening of the navigation to the first of August, amount to \$130,000; nearly \$90,000 more than was received in a similar period of last year, and within \$70,000 of the entire sum calculated on by the canal commissioners, in their last Report.

Lumber now reaches Albany at \$4 per 1000 feet. Merchandize which formerly cost \$30 per ton from the city of New-York to the interior, now reaches its destination, in half the time, at \$6 per ton.

West gypsum in stone (unpulverised) has been sold at Albany at \$3 per ton, and Nova Scotia at \$4 50 cents. Coarse Onondago salt, at 53, and fine at 40 cents per bushel.—*National Gazette, August 12th, 1824.*

Inland Navigation.—It is with pleasure we notice the arrival from Mauch Chunk of a boat laden with 326 barrels of flour and twenty tons coal. The flour was manufactured on the north-east branch of the Susquehanna. And this arrival is an interesting fact, inasmuch as it is the first experiment of bringing the trade of that river to Philadelphia by means of the improved navigation of the Lehigh. The freight of this flour from Mauch Chunk to Philadelphia, a distance of 140 miles, was 30 cents per barrel.

It is also gratifying to state that the Lehigh Company have sent down to this city the present season 150 boats carrying 230,000 bushels of coal, and that the regular shipments from Mauch Chunk now amount to 3000 bushels per day.

* Syracuse is situated on the Great Western Canal at the head of Onondago lake, about 50 miles west from Utica. At Syracuse a branch canal leaves the main trunk, and passing by Salina, enters by several locks into Onondago lake. The works erected near Syracuse for making salt by evaporation stand on alluvial flats, and are very extensive.

Lehigh coal is now reduced to 25 cents per bushel, at Philadelphia.

An article in a Boston paper states, that so low was the premium of insurance, on the ship *Edward Newton* and her cargo, that it would require the profit arising from an insurance of eighty-six millions of dollars, to cover the loss which the offices would have obtained, had the whole been insured. This fact shows the low rate at which insurance can be effected; and the destruction of the ship shows how many dangers beset a vessel upon the ocean.—With these facts in view, we marvel that a cent of property is ever suffered to leave the wharf, without being covered by an insurance.

By a letter from the commander, Captain H. Bestody, dated St. Philip de Benguela, March 12th, 1824, the fine ship *Edward Newton* of Boston, was burnt on the 20th of February, in the Atlantic ocean, at south latitude 29°, longitude east from Greenwich 10° 30'.—*National Gazette*, August 3d, 1824.

To the prudent advice hinted in the foregoing extract may be added the unaccountable and culpable neglect of farmers not insuring their houses and barns. It is not too much to say, that more than \$20,000 would not cover the loss this season in farm houses and barns, by fires occasioned by lightning, which stands on record in the Philadelphia papers. These losses become still more distressing by that of human life to swell the calamity in many instances.

Two modes present themselves, one to avert, the other to remedy this evil. A cheap rod of iron, answers the former, and insurance, the latter purpose; and yet where the lives of a family and their means of subsistence are at stake, how much are those not only prudent, but really humane precautions neglected.

On Friday and Saturday, July 30th and 31st, 1824, owing to the muddy state of the water, the operation of pumping at Fair Mount was suspended. This afforded an opportunity of ascertaining the quantity drawn from the reservoir for the use of the city, and it was found to amount on Saturday, to two million one hundred thousand gallons. The usual consumption in warm weather, is 1,900,000 gallons a day; in cold weather, 1,250,000 gallons.

The mean of those extremes amounts to 1,540,000 gallons. The population actually supplied with hydrant water exceeds very little if any 70,000 persons, or upwards of 22 gallons to each individual. The entire number of inhabitants in Phila-

delphia and Liberties, by the census of 1820, was 108,809; the present number, it is probable, exceeds one hundred and twenty thousand. An aquatic expenditure of 1,575,000 gallons, would therefore admit an individual supply of more than 13 gallons to the whole inhabitants of Philadelphia, Southwark, Spring Garden, the incorporated Northern Liberties and Kensington.

FOR THE NATIONAL GAZETTE.

Mr. Editor.—Mr. Randolph says that Philadelphia is in a state of atrophy, because it has neither water power nor coal. It is without capital too, according to that gentleman's printed speech, and can never possess foreign commerce.

To show what these idle assertions are worth, I send you the following statistic view of Philadelphia; it has been prepared for a Guide of this city now in the press of Messrs. Carey and Lea. S. B.

STATISTIC VIEW OF PHILADELPHIA.

NATIONAL DEBT.

The whole amount of the debt of the United States on the 1st of January, 1824, was \$90,451,834 24 cents—of this sum \$43,509,211 52 cents are held in Philadelphia, thus divided:

Owned by its citizens and corporate bodies	-	29,182,499	50
Owned by foreigners	- - - - -	14,326,712	02
\$43,509,211 52			

Our own citizens receive an annual interest on this			
debt of	- - - - -	1,700,668	11
And foreigners	- - - - -	743,915	43
\$2,444,583, 54			

The annual interest on the <i>whole</i> debt of the United States	- - - - -	5,642,724	95
Of which, as is shown above, Philadelphia receives		2,444,583	54
or very near <i>one half</i> of the whole.			
New-York receives for her citizens and foreigners		1,338,950	39
Boston	- - - - -	1,178,357	74
Baltimore	- - - - -	208,365	16

BANK OF THE UNITED STATES.

Philadelphia holds in the capital stock of the Bank of the United States, 37,269 shares, valued according to the present price at \$122 per share, and amount to \$4,545,818. The an-

annual dividend received in this city on that stock at the present low rate of dividend, is \$186,345.

	Shares.
New-York holds in this stock - - - - -	40,289
Massachusetts - - - - -	27,837
Baltimore - - - - -	38,490

COMMERCE.

Philadelphia is the third, if not the second importing and exporting city in the Union, as will be seen below. I say the second, because the official accounts for Massachusetts, which stand next in amount to New-York, comprehend the great commercial towns of Salem, Newburyport, &c. the trade of which, when subtracted from that of the state, would probably leave Boston below Philadelphia.

The comparative view of the commerce of the four principal districts stands thus for the last year :

New-York imported - - - - -	\$29,421,342 00
Philadelphia - - - - -	13,696,770 00
The whole state of Massachusetts - - -	17,607,160 00
Baltimore - - - - -	4,946,179 00
New-York exported - - - - -	\$19,038,990 00
Philadelphia - - - - -	9,617,192 00
The whole state of Massachusetts - - -	13,685,239 00
Baltimore - - - - -	5,030,228 00

The tonnage of Philadelphia stood thus on the 31st of December, 1824:—Permanent, enrolled, licensed, &c. 84,927 tons; since which more than 10,000 tons have been added. There were built this last spring, as I am informed, 15 vessels, measuring 5000 tons.

POST OFFICE.

Philadelphia paid postage on letters last year -	\$77,048 00
New-York - - - - -	92,891 00
Boston - - - - -	49,923 00
Baltimore - - - - -	41,442 00

INTERNAL IMPROVEMENT.

The exertions of Philadelphia have far exceeded those of any city in the Union, for the promotion of internal improvement. It must be remembered that, vast as are the efforts of the state of New-York, the city of New-York has had no other agency in them than loaning money on good security and on interest, whereas the advances made by the citizens of Philadelphia have been hazarded upon their own responsibility, and exceed in amount the estimated cost of the celebrated canals

of New-York. The gross amount of the several objects are alone given here; but they are taken from correct data.

In bridges over the river Schuylkill	-	-	-	425,000 00
Stock in Schuylkill Navigation, Union Canal, Lehigh,				
Chesapeake and Delaware Canal	-	-	-	3,700,000 00
Turnpikes to Columbia and other places constructed				
with City Capital—Water Works at Fair Mount				2,600,000 00
				\$6,725,000 00

CONTRIBUTIONS TO THE STATE GOVERNMENT.

The average annual expenses of the state government of Pennsylvania, are about \$325,000 including interest on her debt. *Philadelphia* pays \$260,000 of these expenses, or four fifths of the whole.

REAL AND PERSONAL ESTATE.

Not having at hand the last triennial assessment, I avail myself of that of 1817; a year of considerable depression, and I omit to take any account of the many valuable additions since made in splendid public and private edifices.

The city and suburbs (or county) are officially returned at \$55,418,579, which must be doubled, because the value put on real estate by assessors, is never more than half the market price.

The real estate was then <i>seven years</i> ago	-	-	110,837,158
Bank Stock, including that held in United			
States Bank	-	-	15,000,000
Insurance Stock	-	-	4,200,000
Shipping	-	-	4,000,000
Other personal estate, such as merchandize,			
stock in manufactories, bonds and mort-			
gages <i>out</i> of the city, City Stock, plate,			
furniture, all equal at least to one half			
the real estate, including \$25,000,000 of			
United States Stock held in <i>Philadelphia</i> ,		55,000,000	
			78,200,000
			\$189,037,158

DIVISION OF FIVE MILLIONS AMONG THE SPANISH CLAIMANTS.

To the foregoing items, I add, as an evidence of the foreign commerce and enterprize of our citizens, the share paid to Philadelphia out of the awards on the Spanish claims, as compared with other commercial districts. The statement is from an intelligent gentleman at Washington.

Philadelphia receives	-	-	-	-	-	-	1,250,000
New-York	-	-	-	-	-	-	1,000,000
Baltimore	-	-	-	-	-	-	700,000
All New England	-	-	-	-	-	-	1,750,000
South of Potomac	-	-	-	-	-	-	300,000

\$5,000,000

This very valuable table was inserted in the *National Gazette* of July 3d, 1824, and now published in Carey and Lea's "*Philadelphia in 1824*," for which it was originally compiled. By the liberal permission of Messrs. Carey and Lea, it is inserted in the *Repository*. Such information cannot be too widely disseminated.

Connection of the Ohio and Lake Erie.

We noted, about the beginning of August, the dispositions which had been made by the board of engineers of the United States to prosecute the surveys of the route of the contemplated canal to connect the waters of the Ohio with those of the Chesapeake. The whole line, our readers will recollect, was stated to have been divided into three sections, to each of which a brigade of topographical engineers and surveyors were allotted--and that the board itself subsequently proceeded from Pittsburgh to the Big Beaver river (one of the tributaries of the Ohio) for the purpose of examining into the practicability of connecting the waters of Lake Erie with those of the Ohio. We have now before us information from the latter quarter as late as the 12th of August, at which time the Board had extended its examination as far west as the mouth of Grand river, emptying into Lake Erie. It was on its return from that point, and would proceed to Ashtabula and Conveyant; thence to examine the communication from the Conveyant river, by the lake of the same name, to French Creek, a branch of the Allegany river.

The members of the board have been almost incessantly on horseback, and have, it is believed, concluded their examinations of the connections between the Beaver and the Cayuhoga and Grand rivers. The country embraced in this section has been found to possess an extraordinary character. On the ground where the streams take their rise (both those that fall into the lake and those of the Ohio) it is flat and swampy for many miles in extent; so much so that the roads through it, have either to be raised considerably by throwing the earth from the sides to the middle, or by causeways of logs--as, otherwise, the deep mud would absolutely render them im-

passible. From this extreme flatness the small streams appear in some instances at a loss which way to run—whether to take to the Lake or the Ohio. The Cayuhoga is spoken of as a peculiar river. Taking its rise in the neighbourhood of the Lake, it runs thence south for some distance, when it takes a bend and returns to the lake at Cleveland, where it is of considerable size. The examinations of the board have ascertained the important fact that the whole of the waters of the Cayuhoga may be thrown into a branch of the Mahoning, and thence, by the Beaver into the Ohio; and this junction may be effected by a cut of three-fourths of a mile in length, and of seventeen feet at its greatest depth.

The character of the country examined is such that there appears to be in the summer season as great, if not a greater supply of water on the summit than at a considerable distance down on either side. The country is found to be badly watered—many mills were passed at which there was not a drop of running water, and to meet with a spring was a matter of rare occurrence.—*Baltimore American*.

From the foregoing it would appear that the waters of the Cayuhoga may be diverted from its natural course into Lake Erie and made to flow into Ohio, and consequently may be used as a feeder to a canal in either direction. A want of running water in the latter part of summer, and beginning of autumn, is not peculiar to the section of country between the Ohio river and Lake Erie. Almost all western Pennsylvania, and great part of Ohio, though abounding in springs, the evaporation is so great when the thermometer exceeds 75° as in a great measure to exhaust the streams.—ED. REP.

Union of the Atlantic and Pacific Oceans.

The most stupendous in conception, and most important in its results upon the interests of all mankind, is that of a canal to connect the two great oceans which bathe the opposing coasts of America. This subject has been the theme of speculation ever since civilized man set his eye upon the long irregular isthmus which joins the two wide spreading extremes of this continent. It is only, however, recently that the subject has assumed an aspect calculated to arouse attention to an immediate inquiry into the practicability of its execution. That inquiry we may hope will lead to the only effectual incipient step to a further advance; that is, a survey of the whole Isthmus.

In the present state of geographical science, doubt and darkness reign over the geography of that part of America. The

following communication made its appearance not very long since in the Baltimore Federal Gazette, and deserves notice as containing many very judicious reflections.

“To open a communication by canal between the Atlantic and Pacific Ocean, is an enterprise that has been long spoken of, long an object of speculation; one that has occupied the attention of able writers, and which if accomplished upon even what might be deemed a moderate scale of capacity and expense, would present to all nations new and extraordinary facilities for trade, and confer on the nation through whose territory the canal of navigation would pass, benefits almost beyond the reach of human anticipation, and certainly incalculable in point of revenue, and of political as well as commercial power.

Now that the riches of the New World are thrown open to the Old—now that the emancipated inhabitants of Mexico and the southern portion of the New, can carry on commerce with the Old World, and with the United States, unfettered by unnatural and oppressive restrictions, and to the advantage of all, there only seems wanting a junction of the waters of the Atlantic and Pacific by canal, to give to trade that light and life, that spur and impetus, which the Omnipotent seems to have contemplated in his works, and which it would also seem was reserved for the present generation to promote, and if not to enjoy to the widest extent, at least to impart and secure to posterity.

A canal such as that alluded to must, in a short time from the period of its completion, change the whole face of commerce, open sources of wealth heretofore unknown, turn trade into channels now unexplored or unthought of, and finally expand the mind, meliorate the condition, and improve the moral state of man.

A work so important in its objects, so honourable in its nature, and promising to be so vast in useful results, belongs to the Republic of Colombia.—To this republic, first amongst the new states, in order, in constitutional liberty, in heroic suffering and public virtue, belongs the actual achievement of an enterprise which would appear to have been hitherto little more than the waking dream of the philosopher, or romantic project of the engineer, but which we have at last reason to believe, is easy of accomplishment, and on the verge of execution.

A gentleman with whom we have conversed, who has travelled much in Colombia, who has made surveys of different parts of that country, and who, from education, intimacy with science, and general intelligence, is well qualified to decide on the subject, prefers a communication between the two seas unit-

ing the rivers Atrato and St. Juan de Chirambira to any other route that has been yet mentioned or explored. He has, indeed, nearly satisfied us, that a junction cannot take place either by the lake Nicaragua or by the river Chagress.—The latter is to be considered as beyond a doubt impracticable. The oceans being here divided by a ridge of at least three thousand feet above the level of either sea, and as to the route by the Nicaragua, it is to be observed, that this lake lies many hundred feet above the level of the ocean; that all extra or superfluous waters are invariably carried off by the river St. Johns, which though the only outlet, has ever proved adequate to drain the freshes of the lake; that the river itself runs with great rapidity; that it would require an immense sum to lock or dam it for the purposes of navigation; that even were this done, it is apprehended the opening a junction across the neck of land dividing the lake of Leon from the Pacific, would drain the upper lake, Nicaragua, below the level of its union with the head of the river St. Johns, and thus render the intended communication by this route altogether hopeless. We present these points of consideration briefly as possible, from a variety of data before us, but, we trust, sufficiently clear for all the objects of a newspaper communication.

The local circumstances attendant upon the proposed plan of junction by the rivers Atrato and St. Juan de Chirambira, are of a totally different character, and could we wonder at any neglect or mal-administration, distinguishing the Spanish government from all others in the civilized world, we should express our astonishment, that a work so easy of execution, and of such, we might say, unbounded utility, should have been left unattempted to the times in which we live. The plan of the projected union between the two seas is, it will be seen, simple and easy, for nature has made it so.

The Atrato taking its rise about the middle of the fifth degree of North latitude, and of the 77th of longitude West from London, runs smoothly and not rapidly, nearly a north course about five hundred miles, till it empties itself into the Gulf of Darien, one hundred and forty miles south-west of Carthagená. In the whole of its course it is clear of obstruction of any kind, with deep water, except on its bar, which has only seven feet, but this is fully sufficient for large steam-boat navigation.

The St. Juan de Chirambira also has its rise about five hundred miles in the interior, but takes a different direction from the Atrato, and empties itself into the Pacific at Chirambira Bay, where there is a good harbour. This river is also of easy navigation, with deep water, and in running its course it ap-

proaches within four miles of the Atrato, at about eighty miles from the head of the latter, the ground between being a dead level—so much so, that the overflowing of either river inundates the intervening plain, and on such occasions boats have actually passed from one river to the other.

Thus a canal of four miles, to the cutting of which there is neither the obstruction of rock, river or mountain, unites the Atlantic and Pacific oceans for all the important uses of large steam-boat navigation!

Should a particular branch of the Atrato be used, near to the place of the proposed junction, locks in some place would be necessary, but whatever route may be fixed upon, the work presents neither natural difficulty, nor the necessity of a very large expenditure, whilst the consequences promise to be such in utility and magnitude as to defy calculation.

To the United States and to Europe the benefit would be of vast import; it would bring the Pacific and even China, comparatively home to our doors. A merchant, in the event of such a canal being completed, could, to Lima for instance, have a cargo out, and a return, in less time than is now occupied in the voyage out, independent of the decrease of risk, the consequent saving of insurance, and diminution in the expense of freightage. Besides, new sources of trade would be opened, and articles which now never pass Cape Horn, either way, would become valuable objects of traffic. However, to enter into a full examination of this part of the subject, would take more time and room than we can devote to this article, though sufficiently impressed with its interest and importance.

But if the benefits to commerce and to nations generally would be so great, what incalculable advantages would not such a communication bestow on the Republic of Colombia!—what a spring of industry would it not give to her people—what a mine of wealth would it not open to her merchants—what a scope of power would it not place in the hand of her government! It is only in this latter point, perhaps, that the undertaking is to be viewed with jealousy, for it is evidently calculated to insure her influence, approaching to command, over the trade of the Pacific—the Pacific, which seems destined by nature for steam-boat navigation, and which is touched at so many distant and important points by the Republic of Colombia. It would also give her unexampled weight in commercial treaties with foreign powers, and an immense revenue from even a very small transit duty. Indeed to make the navigation profitable, the duty ought certainly to be very small. The fine city of Carthagena now languishing, occasioned by the dearth of produce in its immediate neighbourhood and the

opening the port of Santa Martha, might be thus saved from impending ruin, for should the now contemplated canal by the Atrato be cut, Carthagena, from its vicinity to the mouth of that river, its position, commanding the entrance of the Gulf of Darien, and its safe harbour, would become the emporium of the trade to the Pacific, from Europe and the United States, and that important fortress of the republic, which now begins to put on the appearances of decay, would soon assume all the spirit and prosperity of commercial greatness.

We might, from the materials in our possession, enlarge much more and shew still further how variously the proposed canal would benefit Colombia and all nations, but we have said enough to gratify curiosity, and sufficient to awaken interest on a subject of unquestionably great importance to the world."

The writer of this document, like many others, has indulged in expressions derogatory to the Spanish government in America, without perhaps duly weighing the peculiar circumstances under which that government was placed: and also, in applying to the colonial system of Spain in America, what is general, or universally due to all systems of colonial dependence. It is probable that the most ruinous circumstance peculiar to the Spanish colonies, was the spreading of a limited population over too wide a surface. I have already in this number, remarked the scarcity of population in Europe at the epoch of the discovery of America.* In addition to the confined source of emigration, the Spanish colonists were spread along the continent and islands of America, from N. lat. 40° to S. lat. 33°, or over upwards of five thousand miles from north to south, and on above five millions of square miles. On all this vast area, embracing the finest climates of the earth, and concentrating in many places the most valuable natural productions—but man, the most valuable of all, was wanting. In the neighbourhood of Mexico, where condensed population and wealth have put it in their power, the inhabitants have done more than has been ever done in any other place by a people labouring under colonial restriction.† When civil

* See page 38, note.

† The mountain valley in which the city of Mexico stands, has been compared to the bottom of a reversed saucer. In its natural state this elevated basin was liable to occasional and destructive floods, by which the city of Mexico was frequently inundated. To remedy this inconvenience, the Mexicans have cut a canal of desiccation through the mountains and led the surplus water into the river Tula. "The Desague" (*Drain*) says Humboldt, "is in its actual state (1803,) undoubtedly, one of the most gigantic hydraulical works ever executed by man."

The Desague of Mexico will be amply noticed in a future number of the

liberty is once secured, the face of affairs will no doubt assume another and infinitely more favourable aspect. The resources of the various Spanish nations will be developed with a rapidity which must astonish the inhabitants themselves.

To cut the isthmus, is, however, not simply to enhance the power and resources alone of the nation over whose territory the canal is made, but such a work must change the whole commercial relations of the world. It is an enterprise of the highest import to the free nations of both Americas; and as no direct geographical view has ever been given of that part of America over which the proposed connection is to be made, it is my intention to devote a share of the Statistical part of the Repository to that object. *Barón Humboldt*, in his political essay on New Spain, noticed the different routes by which a canal could be formed, but entered into no general description of the Isthmus. In the actual state of geographical science no completely satisfactory detail can be made, but enough is known to admit the subject to be brought forward in a more connected form than has been done hitherto.

No very definite idea has been conveyed by the term Isthmus of Darien, or Panama. The narrow strip of land between the Gulf of Panama of the Pacific, and the Caribbean sea, an arm of the Atlantic, presents the nearest approach of the waters of those vast oceans; but, with very unequal width, extending from south-east to north-west upwards of 1500 miles, the immense Isthmus affords several points where the distance from the Atlantic to the Pacific is evidently within the scope of canal enterprise without any very onerous expense. This will be more clearly understood from the following geographical view.

If we extend the great American Isthmus, on the east to the mouth of the Atrato river, and on the west to the Gulf of Tehuantepec, and river Chimalapa and Guasacualco, it reaches from half a degree east to eighteen degrees west from Washington city. The bottom of the Gulf of Darien and mouth of the Atrato, is in N. lat. $8^{\circ} 30'$, the Gulf Tehuantepec in N. lat. $16^{\circ} 20'$, and the mouth of the Guasacualco river in N. lat. $17^{\circ} 30'$.

Within these geographical limits spread two vast peninsulas, containing together, more than three hundred and fifty thousand square miles, and discharging into the Gulf of Mexico and Caribbean sea numerous rivers, many of which are of considerable magnitude, and length of course.

Repository; it is alluded to in this place to shew, that where obstacles were not insurmountable, the Spanish colonists in America were not that indolent race they have been supposed. The parent state was in reality chargeable with thwarting every laudible undertaking, and what parent state has ever acted with uniform liberality towards its colonies?

It may be premised, that in the present, as in almost every other instance, the geography of the mountains is most defective. In all our maps of North America, the great central chain of Anahuac, in Mexico, is extended to the south-east, and connected with the chains of the Andes in South America. I have been for upwards of twenty years of opinion that this arrangement was radically wrong, and almost the reverse of fact. One very general law of construction seems to prevail in the mountain systems of America; the chains extend in lateral ridges in one general direction. This I have already shewn is strikingly apparent in the Appalachian system. As far as we possess correct information, the same regularity of structure prevails in the great chains west of the basin of the Mississippi; and in those of the Brazils, and Andes of South America. In all these chains their range seems uninfluenced by the contiguous oceans or rivers. If my hypotheies respecting the mountains of Guatemala be correct, their range is nearly north-west and south-east, leaving deep intervening valleys. Also, that similar to other American mountains those of Guatemala are of very unequal elevation, admitting passages not very elevated, from ocean to ocean. We see by reference to the profile maps prefixed to this number, that the Appalachian admits two passes from the Atlantic into Lake Erie one, less than nine hundred, and the other only five hundred and sixty-five feet above tide water in the latter ocean. That similar and much less elevated passes exist in Guatemala and Colombia, I trust will be seen in the course of this memoir.

Another very important element in the investigation of this subject, is that of the respective levels of the Atlantic and Pacific oceans. The trade winds and current of rotation, it is well known, produce that immense whirlpool in the Atlantic Ocean, to a part of which opposite the south-east coast of North America has been given the name of Gulf Stream. Between South America and Africa, and within the tropics, the surface of the Atlantic ocean flows regularly westward. Separated by Cape St. Rocque, S. lat. 5°, this vast ocean current is divided: the northern section inclined to the north-west by the coast of South America, is carried into the Caribbean sea. Again urged forward in the same direction by the general range of the Isthmus, the accumulated flood pours into the Gulf of Mexico between Yucatan and Cuba; and again escapes into the Atlantic between Cuba and Florida.

(To be Continued.)





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